

Arizona trip, 1901

Saturday May 25<sup>th</sup> 1901

Arrived at Williams at 12 noon. Went out in p.m. to base of hill immediately east of the town. Timber mostly cut down and the place overrun by cattle & horses. Various species of ants under stones etc.; among a yellow *Lasius* & *Linumotus*. Under stones an *Eucanthus*! a *Cymindis*!, *Stenobothrus*, *Coelocnemis*, <sup>or *oripontis*</sup> under logs *Zopherus*. Feeding on the young growth of *Pinus* sp. a brilliant *Magdalis*; within a small dry branch of *Pinus* a black *Ernobius*; under bark of same twig a *Pityoplecthorus* (probably *extolus*) Small *Lepidoptera* pupa in the fruit(?) of *Juniper*. A Tortricid extremely common webbing among the leaves of an Oak



(2-3)

Sunday, May 26, 1891

Went along the east side of the hill visited yesterday.  
Beat the slender bushes of *Purshia 3-dentata* (plant  
no 1) on which occurred a *Pyllid* (same as found by  
me at American Fork, Utah) with its bicolored pupa  
(this has also the power to creep); a *Stereopalpus* (probably  
not peculiar to this shrub); and a nearly black *Pachybrachys*.  
Unknown plant no 2 harbored enormous numbers of a  
beautiful *Tineid*. Unknown flowering plant (no 3) harbored  
a *Luperus* (probably *varipes*). Under bark of old pine  
stumps various things occurred although the stumps were  
quite old.

In p.m. Herbert & his father went along the railroad track west  
and found various *Carabidae* under stones (*Rhadine*, *Stenopalus*  
*Gymnoderis*, *Arenaria*) which do not occur on the side of the hill  
mentioned above. *Eledes planicollis* also occurs there.

Myself went to the northwest side of the same hill and  
with the young and mostly started pine trees with good success.



(4)

Monday, Williams, Ar., May 27, 1891.

Went again to the southern side of the hill previously visited by us, going beyond the point reached by us yesterday. The road enters here a sort of cañon which looked very promising but the Coleopt. fauna was poor. In a shallow side ravine, where there was some moisture we found under a stone among a colony of a blackish *Laricus* a single specimen of a small *Heterisus*. In the bottom of the cañon there were willows, roses and a *Cornus* but there was no fauna; there were even a few water holes in the bed of the creek but H. found only a single specimen of a *Hydroporus*; wigglers, however, were plentiful. Sifting at various places produced no result whatever, though H. found under a stone a specimen of *Ctenistes*. H. collected under bark of *Pinus* and *Spruce*<sup>logs</sup> without finding much.

In the afternoon we went to the west side of the same hill where I was yesterday afternoon. I collected specimens



(5)

[Williams, May 27 continued]

of the bud like fruit of *Arbor vitæ* inhabited by a  
Tineid; and also fruits of the same tree infested by a  
*Microlepidopteron*. These two trees must be the same species although

I have hitherto seen only one specimen. A black saw-fly also  
occurred on the *Arbor vitæ*. H. found a small pestiferous  
species on pine.



6

Tuesday,  
XX

Williams, Ar. May 28

A. M. Excursion in the open ~~park~~ park like country north of the city. Not much found

P. M. Excursion up the northern slope of the hill back of the city. H. climbed to the top of the hill. Myself beat the oaks and found some good things; among others two specimens of *Balanus* sp. and *Chrysobothris militaris*



Wednesday, May 29<sup>th</sup>, Williams, Ar.

A.M. Excursion into the cañon above the Lake. H. went farther up beat the willows without success and fished for water beetles also without success. Myself went on the slope of the well-known hill and beat the oaks with some success although the beetles are extremely scarce in specimens.

P.M. Excursion along the north slope of the well-known hill was rather spoiled by rain. Got a *Pseudobates* on oak and a *Crioceraphus* under bark of old pine stump.



(8)

Thursday, May 30 th

In a.m. excursion around the hill in the southwest of the city. The park-like region seems to be poor in insects.

Collected some time at the base of the nearest hill toward Ben Williams. There were plenty of timber had been killed by fire. Very few insects to be seen both on oak and pine. After crossing the small divide ~~but~~ toward the town we came in a cañon where

we found a few good things under bark of pine stumps (*Hypophloeus opaculus*, *Triplax*, pupa of *Aranthocinus* etc. *Chrysobothris* on *Arbores Vitae*).

In p.m. went again on the north slope of the well-known hill nearest to the city. H. beat the pines and found *Larcomorpha*, *Attagenus*, *Sacianus*, *Cryptophagus* and *Pityogenes*; I beat the oaks, failed to find *Balaninus* but got *Sinoryctes*, *Melastinus*, *Chrysandria*, and on dead pine a *Nemorosoma*.



(9)

Friday, May 31, 1901

Williams, Ar.

A. M. Went into the cañon beyond the "Lake" and beat oaks and pines. Few good species were obtained: H. found two additional specimens of the new *Pachybrachys* with red sides; also we found for the first time a blue *Rhyachista* (*glauca*?) a *Pandeleptus*, an *Olibrus*. On oak I got one specimen of a fine *Scolytid* (dark brown rather shining) and another *Scolytid* (piceous opaque) I got probably on pine.

P. M. We went again to the same place, H. worked with the butterfly net and I used the sieve but with poor success: a mite; *Carabus taedatus* 1 specimen; *Phalerus* sp. (1 specimen), a *Tachyporus*, an *Homalota*

Plant no. 4 is a Composite, to which *Anthaxia aeneogaster* is attracted.



9a/ Entomological Survey of the San Francisco Mt. Plateau by S. A. S. &  
Alcoholic material from Williams, Jr. H. B.  
sent to Washington, June 1, 1901

All collected between May 25 ~~to~~ May 31 <sup>to</sup> 1901

Vials.

- No. 1 <sup>Large</sup> Centipede found under log; smaller under rock; slender  
one under old leaves
- ✓ 2 Arachnida, Miscellaneous
- X 3 Arachnida " (Vial broken)
- ✓ 4 Two spiders with their egg-sacs, found under stones
- ✓ 5 Two Opiliones under old leaves
- X 6 Mites from under dry leaves (Vial broken & specimen lost)
- 7 Podiceps on rocks under bark etc.
- ✓ 8 Myrmecophilous mite among Larix sp.
- 9 Idaho devil under rock
- 10 " " " "
- 11 Centipede under rock
- 12 " " "
- 13 " " "
- 14 Centrophilus under log
- 15 Colony of Termites under bark of old pine stump
- 16 Bombycid larva found under stones. Shall try to breed other larvae



(2) (96)

of same species. Food plant not known. Shall also send  
living larvæ.

- 17. Simulium larvæ <sup>and pupæ</sup> found in <sup>little creek</sup> water hole. We have an imago  
possibly of this species. (A few hemipterous pupæ <sup>& culicid larvae</sup> are noted  
in, the imagos of which have not yet been seen.
- 18 Lophyrus sp. quite abundant on young Pinus sp.
- 19 Unknown Tenthredinid larvæ on Quercus sp.
- 20 Larvæ of and imago of Dermestes mannerheimii found  
in dead horse
- 21. Larva of Eleodes sp., and larva of an allied genus  
(perhaps Coelocnemis) in ground <sup>under stones</sup> ~~near pine stumps~~.
- 22 Unknown Heteromorous <sup>Coleopterous</sup> larva (perhaps <sup>Zopherus</sup> ~~Lecanotia~~ gracilis  
discicollis) under bark of pine stump.
- 23 Unknown Heteromorous Coleopterous larva under bark  
of pine stump.
- 24 Unknown Longicorn larva, and Xylophagid larva under  
pine bark
- 25 Imagos of Limulodes paradoxus found among  
Larix sp.
- 26 Unknown Carabid larva (Harpalid) under stone



C3/9C/

- 27 Black ant ~~xxx~~ under stone
- 28 Yellow Lasius (same species as in vial 25) with pupa  
case
- 29 Spider with egg sac
- 30 Dry. — Sapius sp. under cow dung
- 31 Dry — Platysoma punctigerum ~~alt~~, Plegaderus spp.  
and Acritus sp. under pine bark of pine stump.
- 32 Dry — Platysoma punctigerum and Plegaderus spp.  
under bark of pine stump.



(4 / 9d)

Living specimens

Tin box no. 2.

Buds(?) on Arbor vitae ~~some~~ <sup>be found to</sup> some  
of which will contain pupae of a Microlepidoptera.  
On this and other trees of the same species no real  
fruits ~~or~~ could be found

Cigar box no. 3.

Fruits of Arbor vitae(?) some of which will  
be found to contain ~~or~~ each a larva of a Microlepidoptera.  
These Arbor vitae trees <sup>which bear fruit</sup> manifestly of the same species as  
no. 2 never bear the "buds".

In this box there is also a <sup>living</sup> Bombycid larva  
found (list only this single specimen) on Arbor vitae with its  
shed skin in small pill box.

Tin box no. 4 Bombycid(?) larvae occurring here  
(rather rare) under stones. Food-plant unknown. There  
is one specimen in alcohol (see vial no 16)







Saturday June 1, 1901

Williams, Ar.

A.M. Packed a lot of material and sent to Washington 4 packages (8 boxes; see contents pp. 9<sup>a</sup> to 9<sup>e</sup>. Wrote to Dr. Howard.

P.M. Herbert went alone up the valley of the direction of Ben Williams Mt (I shall call this Canon of the Lake) and reported a fine locality. He brought back various aquatic insects, saw about 5 species of dragon flies. *Apidae* collected on flower of Thistle —

The afternoon was warm, and in the evening various insects, especially the large *Stylaster* were flying about. He found a fine small Longicorn on a fence after dark.

Myself went to the nearest gulley on the north side of City Hall hill, beat the little oak bushes and the dead branches of felled Pines. Found a lot of good things not taken before by us. *Ips* sp., *Oxopler*, *Leptostylus* & *Arctostylus* on pine. A small *Stylaster* is not rare on oak but must belong to the pine fauna. The new Scolytid, previously mentioned is to be found on oak and pine; real habit doubtful.



Williams, Arizona  
 Sunday, June 2, 1901

Went in the Cañon of the Lakes. The artificial lakes and the creek above the lakes appear to be extremely poor in insect life. Of Coleoptera only two species were found viz. Deroceras striatellus and Agabus sp. The shore fauna is equally poor and consists of only two species of Bembidium. Beating a huckleberry-like low bush produced Asclepias sp. (quite common) Oncidium sp. and Alouatta sp. (the latter very abundant on flowers of a Viburnum)

Above the lakes the cañon becomes narrow densely wooded (Spruce, Pine, Oak, Locust, Aspen) and seems to be a good collecting

ground at the proper season (later than now). Siefting was very poor

and produced only Philonthus sp., Mycetoporus, Conosoma, Lithochoris

Cryptophagus, 1 Atomaria, 1 Caenocara, a few Homalida etc.

On Aspen, Oak etc. a species of Dichelonychia. Under stones

numerous colonies of ants, two Lasius, 2 Formicas. Among a

dark honey-colored Lasius we found a ~~Formica~~ an Adranes ant

and Hetaerius. Among the black and shining Formica r. texensis (?)

we found an Hetaerius.



Williams, Ariz.

Monday, June 3, 1901

Went to the entrance of Lake Cañon; fished for water beetles and beat the huckleberry-like bush. Had to return on account of want of breath. H. went on further to end of upper pond and found a

*Crematogaster* (black *Trombic*) and two more *Heterocera*

In P. M. I went to the north slope of City Hill (to look for my lost beating cloth); beat oaks (*Centorhynchus* n. sp.) and dead pine branches (lots of *Pityophthorus*) and a *Monochamus*.



Williams, Ariz,

~~Monday~~ Tuesday, June 4, 1901

A. M. Went into the valley west of the town (beyond the sawmill) but did not get many insects. *Ernobius* sp. from dead pine branches; *Xyleborus* sp., large colony of in "rotten" stump of pine; *Tomicus pini*(?) and *T. near caelatus* under bark of small standing Pine which had been killed by unknown cause

P. M. Heavy wind; H. went up the cañon toward Ben Williams Mt. Myself remained at home, investigated the pieces of pine woods containing the *Xyleborus* colony but found only two dead insects. No larvae or pupae in the colony.

Packed a cigar box (No. 9) full of pill boxes to be sent to Washington.



Williams, Ariz.

Wednesday, June 5, 1901

A.M. Went along the north slope of City Hill, beat oaks and pines. Came across a young pine tree, dead. In large longitudinal galleries under bark a few mostly dead *Pseudotsugus* (small black species) could be found and the larvae in the secondary colonies are most probably of this year. The same tree furnished also specimens of a *Tomicus* (mini group?) and a very elongate *Tomicus* or *Pityophthorus*, the initial galleries of which were preserved. H. found in a large, standing, dead pine tree a colony of *Monarthrum* (?) He also found a new *Styloptilus* probably on green pine.

P.M. Went to the pile of logs that had tumbled into the cañon from the railroad; a large *Tomicus* (2 species?) is here under bark, also a *Monarthrum* (?) and a single specimen of a *Pityophthorus*. Numerous specimens of *Larconotus* sp. are in the *Tomicus* galleries. — H. went up to the cliff and looked at the Yucca flowers: found *Proctos* and a Meloid.



Williams, Ariz.

Thursday

Friday, June 6, 1901

A. M. Went along the railroad track toward Flagstaff for about two miles but failed to find almost anything. *Melanophla gentilis* (?) on a dying pine. - Large numbers of *Dendroctonus valens* were found in houses etc. in the city.

P. M. Went to the upper end of the upper pond in Lake cañon. Discovered the existence of a new Scolytid living just under the thin outer bark of dead Aspen trees. H. succeeded in finding a piece of bark where the outer epidermis could be peeled off and the gallery of the species exposed. The presence of each beetle under the bark is indicated by a small hole in the bark. - Pupa of a large *Melanophila* as well specimens of *Allandrus* and a *Sericus* occur on Aspen. *Dichelonyx* common on oak; *Corymbites tricuspidatus* on oak - In passing the wood-piles toward sunset a lot of Coleoptera were found on the pine sticks; apparently nothing has come out the oak sticks. Among others we found there the genus *Othius*.



Williams, Arizona

June 7, 1901

A. N. Went along the slope of City Hill opposite the Lake. H. went up the cliff and visited the Yuccas. I investigated a dead <sup>(subsequently lost)</sup> large pine tree. A single specimen of a small (brownish) *Dendroctonus*, and a few specimens of a small *Tomicus* (?) were found. This tree must be dead many years although *Plegaderus*, *Hypophloeus*, *Trigonita* etc. are still under the bark. Our unknown plant No. 2 is also harbored in its dead branches with *Buprestid* and other borers.

P. N. Went along the north slope of City Hill (first gully); beat oaks and found a *Pinus* and 3 specimens of a *Otidocryptus*. Found on the slope a half-dead *Pinus*; death probably due to the attack of a black *Dendroctonus* of which at present only single specimens can be found in the galleries. Most of the *Dendroctonus* are small but occasionally a big one is found among them. Besides these *Dendroctonus* there is under the bark that small *Tomicus* isolatus.



Williams, Ariz

Specimens sent to Dr. L. O. Howard

June 8, 1901

All collected between June 1 and June 7, 1901

Box 10. Cigar box. Alcoholic specimens

Vial. 33 Miscellaneous Arachnids

34 Miscellaneous Arachnids

35 " "

} mostly beaten from  
trees.

36 *Centropus* sp

37 ~~*Idaho*~~ *Idaho* ~~deril~~ "

38 *Idaho* *deril*

39 Two species of *Psorids* on dead <sup>oak &</sup> pine leaves; also *Aphis* on  
*Quercus* sp.

40 *Tarentula* sp found under stone

41 Various small vials, packed in a big one, containing  
miscellaneous specimens

42 *Myrmecophila* sp found among *Formica* *nitens* under stone

43 Miscellaneous larvae, mostly aquatic, some under pine bark

44 *Agabus* sp with larva; also some other miscellaneous larvae



- No. 45. Larva of *Cylindrus* (?) and imago of *Tropisternus*
- 46 Larva of *Coelocnemis* or *Eledus* in ground
- 47 *Pseudoscorpions*, *Raphidia* larva & miscellaneous
- 48 Insects (mostly *Coloptera*) found in rosin of *Pinus*; also  
*Dendroctonus* *Tomicus* found under bark of <sup>new</sup> *Pinus* logs at the mill.
- 49 Pupa of *Allandrus* found under bark of *Aspen*
- 50 *Lasius* sp. with larva, and insignificant insects  
(*Limulodes* & mites).
- 51 Unknown *Scarabaeid* larva found under stone.
- 52 Colony of ants
- 53 Myrmecophilous mites
- 54 *Lepidopterous* larvae found between flower stalk and adjacent  
bracts or flowers.
- 55 Larvae of *Trogosita* under pine bark
- 56 Colony of *Xyleborus* n. sp., ♀♀ and two ♂♂ (found dead) from  
the stump of *Pinus* sp.
- 57 Thrips from flowers of *Yucca* sp.
- 58 Pupa and imagoes (immatures & or injured) of new *Scolytid* under  
outer bark of *Aspen* (see samples of burrows)



No. 59. Supposed larvæ and two (found dead) imagoes of the destructive *Dendroctonus*, found under bark of dead young pine tree on north slope of City hill

No. 60 One larva and two imagoes of the destructive *Dendroctonus* (same <sup>as</sup> of no 59<sup>e</sup>) from under bark of dying large pine tree (see galleries)

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Cigar box no. 11 Specimens in pill boxes

Package no. 12 Bark of *Pinus* sp. showing galleries of *Dendroctonus* n. sp. (Alcoholic specimens no. 60)

Package no. 13 Duplicate of Package no. 12

Package no. 14 Galleries of new gen. n. sp. of Scolytids under epidermis of *Populus tremuloides*. (Alcoholic specimens no 58)

H.B. The package contains also a small vial with three sample specimens of the Scolytid

Package no. 15 Galleries of (?) *Tomicus* n. sp. under bark of *Pinus* sp.

Alcoholic specimens of imago will be sent under number 60<sup>a</sup>



Package No. 16. - Galleries of Tomocus sp. near pini  
cunder bark of felled pine logs. Imago in pill boxes.  
These logs belong to a lot which was brought by the mill people  
from the southern side of Ben Williams Mt.

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Package No. 17. Fresh flower stems of Yucca sp. infested  
by a Lepidopterous borer (see alcoholic specimens in vial 58)  
which does not belong to the Prodoxidae). The flowers of  
this Yucca furnished 2 species of Procris which have  
been pinned as by Herbert.

Package No. 18. Leaf-borer of same Yucca with  
same Lepidopterous borer

Sent June 11<sup>th</sup>

Package No 19 Pinned Microlepidoptera, mostly Yucca moths

Package No. 20 Pinned Dichelonyx



Williams, Ar.

Saturday, June 8, 1901

A. M. H. went up to the Yuccas and brought back flower stems and leaves infested by the Lepidopterous borer; also an old flower stem in which there is a *Stenomychus* and its larva.

I stood at home and packed the material collected

during the past week. Sent it to Washington with list (see rough copy). There was a heavy west wind the whole day. Late in the afternoon I went for half an hour to the nearest gully of City Hall.



Williams, Ariz.

Sunday, June 9, 1901

Went from 9 a.m. to 6 p.m. to Lake cañon above the upper pond. Could not find a living colony of the Chamaesecus in Robinia. Found Eparcia and Colastes under fresh bark of Aspens; Apion sp. (perhaps 2) on leaves of Aspen Robinia; Odonota on leaves of Robinia, Agrilus sp. on Oak; pale Dichelonychia especially common on Spurse. In the bushes farther up the cañon many insects were to be seen ~~in~~ the shady side.

H. found an Otiobryntis feeding on the roots of the yellow bean-like plant; the same species occurred under stones.



Williams, Ariz.

Monday, June 10, 1901

A.M. Went along the northern slope of City Hill. Beat oaks (*Quercus*); H. found a big *Chrysobothris* on oak. Found a dead pine tree; the destructive *Dendroctonus* foliately numerous, large specimens scarce; These ~~beetles~~ must be the ♀♀ of the previous generations; Curvies less than half grown. For the first time we found *Hylurgops subrotulatus* in the same tree; also *Monarthrum* and the elongate *Tomicus*. Also a specimen of *Collyrium* and several species of a Melandryid, with numerous *Platysoma* and *Plegaderus*.

Collected a few specimens of *Dactylopus* and a species of *Aphis* on roots of red flowering plant. Bees on flowers of *Persea*. Found two specimens of *Zarrellis* under large stone at the foot of hill.

P.M. H. went along the trail toward Ben William Mt. Myself went to the place visited a.m. and found a single *Microgaster* in oak branch.



Williams, Ariz

Tuesday, June 21, 1901

A. M. Went again along the <sup>northern</sup> slope of City Hill. H. cut out some of the *Phloeosinus* galleries in the bark of juniper. A few dead beetles were found in the galleries. Beat the oaks with little success and found only one *Hyperaspis*; on young pines a black ? *Attalus* with serrate antennae; H. found on young pines a green *Chrysobothris* (?). A dead specimen of *Santalus* under a stone. Examined a dead pine and found at the base and in fact nearly underground a colony of a light-brown, small *Dendroctonus*, which does not make any galleries as the black species.

P. M. Went above the upper pond in Lake Cañon; did not find much in beating; hunted for some time for additional specimens of the Arpa Scolytid. Followed a road up a ridge along the cañon; found *Epiphloeus* on dying pine. H. found a *Scolytus* under bark of Spruce.

[H. has found some days ago a *Limnoria* (!) pupa, and said that he observed the same jumping about in the vial]

In P. M. I wrote to Dr. Howard and sent off packages 19 and 20. Larvae of *Strategus* shown to us by Mr. Permount.



Williams, Ariz.

Wednesday, June 12, 1901

A. M. Went along the north slope of City Hill. Beat oaks and pine, *Chrysobothris* from oak; very small and very large *Pityophthorus* from pine. All *Pityophthorus* hitherto found must be twig borer.

*Epimilis* (?) from pine feeding on ??. Meloid beetle from pine.

*Ptilinus* <sup>unus</sup> under bark of dead pine among the debris made by the *Pityophthorus*.

Found a single *Dendroctonus terebrans* at the base (practically below ground) of dead tree in the gully; the black *Dendroctonus* extends its galleries from below the ground to high up the tree. Found two specimens of *Hylaster longus* in short gallery below ground.

P. M. Went along the trail above the lake cañon. Black *Chrysobothris* on Spruce. The *Scolytus* seems to be a deadly enemy of the Spruce but at this time only larvae and dead mother beetles can be found. Microacid-like *Scolytid* very rare on dead oak branches. <sup>old</sup> *Lepidopterous* pupae within stem of curious flower.

Enormous number of minute *Hymenopterous* parasites on green Spruce.

*Othius* beetle from dying pine.



Williams, Ariz

Thursday, June 13, 1901

Weather cold and extremely windy. Went into the bed of the creek above the brick dam, and found under stones at places where water holes had been, quite a number of stone things, such as *Bembidium*, *Cryptobium*, *Heterocerous* etc. - Investigated a little one of the felled pine logs: This again contains only *Tomicus* (larvae and pupae collected) and no *Dendroctonus*. A single specimen of *Othius* was found.

H. went up the cliff to the Yuccas and brought back two old flower stems: They proved to be inhabited by 3 species of insects: a *Proctos* larva; *Hemipter* sp. and its larva, and *Apotropeus leucicollis*.

P. M. Owing to the wind we remained at home and packed various packages. After dinner went on a short walk on the north slope of City hill and cut <sup>two</sup> specimens of *Micraea* from dead oak twigs. These twigs are hard as stone and difficult to investigate.



Williams, Ariz.

Friday, June 14, 1901

Extremely cold and windy; snow on top of Ben Williams Mts. Went along the slope of City Hill, found cysts of *Chalcophora* w. under bark of pine stump and later on a perfect dead specimen in solid wood. Found many oak twigs with holes made by the new *Microceris*.

P.M. Spent the time in packing packages and writing to Dr. Howard. After supper made a very short excursion but did not find anything.



Sent to Dr. Howard  
June 14, 1901

Package 21. Work of *Enallotrichus retusus* (?) in

*Pinus* sp. - There will be plenty of living specimens  
in the wood, and possibly also inquilines. So it would  
pay to split the piece of wood in a bradawl cage.

Imagines are present in pill boxes

Package 22. Gallies of *Phloeosinus* sp. under bark of

*Juniperus* sp. Only old galleries have hitherto been found

Dead beetles in alcohol vial, no package no. - vial no.

Package no. 23 Gallies of *Dendroctonus* n. sp. in *Pinus*

sp. (duplicated from package --)

Package no. 24. Work of *Xyleborus* n. sp. within stump

of pine tree (wood apparently rotten!!). Imagines

in alcohol (see vial) and in pill boxes

Package no. 25 Contents: a) box of pinned *Microlepidoptera*

b) small package with galleries of *Tomicus* n. sp.

(no 60?) (additional specimen); c) Initial gallery of



2

Hylaster longus from under bark (below surface of ~~wood~~)  
of Pinus sp. Imagos in full boxes

Package 26 - Contains 4 smaller boxes with  
miscellaneous insects, pinned or mounted

Package 27 Contains 2 smaller boxes with pinned  
or mounted miscellaneous insects

} have  
been sent  
June 16

Package No 28 - Old flower stem (in sections) of Yucca sp.

Probably contains a) larvae of Prodoxus sp. (imagos not seen)

(specimens also <sup>found</sup> in alcohol) b. larvae and imagos of

Hemipterus sp. (specimens also present in alcohol) c

imagos of Apotrepus densicollis (small Calandrid beetle)

Package No. 29. - Recently killed (by oviposition of Cicada sp.

in the more terminal portion) oak twigs infested by an

~~new~~ undescribed genus and species of Scolytids. The specimens

are alive and I am anxious to have a large number bred

from the ~~stem~~ twigs.



Williams, Ariz.

Saturday, June 15, 1901

A. M. Ice in the gutters at 7 a.m.! Nothing came of the projected trip with the lumbering train. Went into Lake cañon. Found a *Ditoma* under rotten bark of a Spruce stump and a *Lathrobium* in the rotten wood of same tree. A *Leptera* on roses. H. captured a small *Chrysobothris* on the same Spruce stump and myself found 3 others on pine knots.

P. M. Packed the whole afternoon

After dark H went out along the railroad track sweeping but did not catch anything of importance



Sent to Dr. Howard

June 17, 1901

Package No 32 - 4 tin boxes, two of which contain

samples of *Eriny astypillae* on what I consider as

*Pereskia 3-dentata*; one web-coons on terminal leaves

of *Robinia neomexicana*, one oak caterpillar



Williams, Arizona

Sunday, June 16, 1901

A. M. Weather warm and pleasant; no wind. Went out alone along the north slope of City Hill; found an Ocene on dead pine leaves, a number of Epimelia on pines infested with Lachnus (or Chionaspis ??), a large red damselfly on pine, also a small Agilus; ~~a couple~~ a Phymatodes on oak, a very small thing near Eriobius on pine, and various other things.

P. M. H. & myself went to the same place again. I beat the Purshia bushes and collected some of the caterpillars, also found on the same place two specimens of an Otiocoryzoid. Found on dead pine leaves a couple (in copula) of an Eriobius. H. found a lot of Chrysobothris ignicollis on healthy Juniper. Otiocoryza on oak, ~~Hemiptera~~ as before.

Sent to Washington packages 26, 27, 30 and 31.



OFFICE OF \_\_\_\_\_

# HOTEL TOLFREE

LYMAN H. TOLFREE,  
Proprietor

Williams, Ariz., \_\_\_\_\_ 190 \_\_\_\_\_



Williams, Ariz

Monday, June 17, 1901

A. Mr. Packed up preparatory to our leaving for Ashfork.

Sent to Washington. package no. 32 containing living caterpillars

Wrote to Dr. Howard.

Left Williams at 12.05 p.m. and arrived at Ashfork at  
1 p.m.

Ashfork, Arizona



OFFICE OF \_\_\_\_\_

HOTEL TOLFREE

LYMAN H. TOLFREE,  
Proprietor

Williams, Ariz., \_\_\_\_\_ 190 \_\_\_\_\_



~~At~~ Ashfork, Ariz

Monday, June 17, 1901

P. M. The country around the village is thickly covered with Juniperus (a species differing from that at Williams) with some other bushes (Purshia, Lycium, Berberis and two others) Lower vegetation quite scanty, most conspicuously being an Abutilon.

Heavy winds nearly entirely prevented beating the trees. Anthrenus sp. common everywhere; Eucoryx sp. one specimen under stone, others on low plants. Stereopalpus rare on Juniper; Macrohoptes common exclusively on Abutilon; Agrilus sp. rare on Abutilon; pale Trichabida on a mint-like plant. General absence of Tenebrionidae at this season, only a few specimens of Eleodes found. Spotted Hyperaspis on Juniper. Lixus ~~sp. on unknown~~ beetle from low plants, Hemoglyphis sp. and small bees with reddish abdomen on Thistle. Hemipterans sp. on Juniper.



Ashfork, Arizona

Tuesday, June 18, 1901

A. M. Fortunately less wind than yesterday; went into the valley southwest of the depot. Large numbers of a *Chrysobothris* on Juniper; the same or an allied species on *Purshia*, *Sarcocolla* near *Anthracoceros* (described by Linell) not common on *Lycium*.

H. found two beautiful *Trichodes* by beating low plants.

*Platycerus* sp. rare on dense foliage of Juniper and other bushes.

P. M. Small excursion along railroad track eastward: *Carabidae* and a *Tenebrionid* under stones. *Lebia guttulatula* under stones.

*Mordellistena* and larva of *Phidippus* as well as cells of <sup>old</sup> bee in stems of *Helianthus*.

Went at 11x 5cl. to Prescott, arrived there at 8.35 p. m.



Prerott, Ariz.

Wednesday, June 29, 1901

A. M. Went went about  $\frac{1}{2}$  miles into the sand hill, beat  
oak, and pine trees. The most striking things on oak are Axiou  
sp. (with larva, feeding apparently on Lecanicum, Otidoccephalus sp.  
a little Atalapha. On pine, Chrysobothris ignicollis (?) and  
Anatis subvittata feeding apparently on Lachnus. Acmaeodera  
sp. common on cactus and yellow flower. Anthaxia sp. on  
oak



Prescott, Ariz

Thursday, June 20, 1901

A. M. Tried the railroad track south but there was apparently no collecting locality. Went into the bed of the creek; saw ash trees, grape vines, lichen. Collected *Ampelogyte crenata* on grape, *Thysanotus* on ash; otherwise there was very little to collect. Went over the hill to our old locality but found only a few species in addition to those found yesterday. Large & small *Agilus* on oak. Various *Atelanus*.

Sent Package No. 33 to Howard.

At 8<sup>45</sup> p.m. took train for Hot Spring Junction where we arrived at 12<sup>59</sup> a.m.

Castle Creek Hot Springs, Ar

June 21, 1901

A. M. Took stage at 7 a.m. from Hot Springs Junction and arrived at Hot Springs at noon. Country resembling greatly the vicinity of Catalina Springs, but everything is dried up and there are hardly any flowers. A. yellow-flowering Mimosa, some belated Acacia ~~in~~ the Wash-weed, ~~and~~ also belated Cat's claw Acacia in flower.

P. M. Acumastodera sp. (very small) on flowers of Mesquite, Chrysobothris atabalipa on fallen cottonwood, A. sp. on "Wash-weed". Small Smicromyx on "Wash-weed"; large Smicromyx on unknown bush.

Fewer success with collecting with lantern.

Larva of Hydrocymus on piece of wood in ditch.

Larva of Cephaloscyamus occidentalis within eggs on Cat's claw Acacia.



Castle Creek Hot Springs, Ar.

Saturday, June 22, 1901

A. M. Took bath in pool and ascended aquatic fauna in the creek. Went down the main cañon to look at the tanks. Very few specimens found; heat very great and insects wild. Saw for the first time *Gyaractus* on bushes; *Baris* on white Cactus; *Elaphidion* on Mesquite.

P. M. Weather extremely hot reached cañon nearly 5 o'clock. Then went up Castle Creek cañon. *Gyaractus* sitting on the top branches of *Cylindropuntia* bushes and flying off like bees by the slightest provocation. *Archyopterus* <sup>*laterivittatus*</sup> ~~*extremus*~~ frequents flowers of a dodder and is also very active. It saw another longicorn which too agile to be captured. Found a beautiful *Acmaeodera* on some prostrate old mesquite branches. ♂

At night we went into the Springs with the lantern, again poor success: a small *Elaphidion* and one rather large *Blattella*.

Hot Springs, Ariz.

Sunday, June 23, 1901

Went early morning to the Springs and collected a little in the  
tepid water. Worked there the whole day - Looked over the biological  
material from Williams

Late in the afternoon made a short excursion along the hill  
north of the hotel



Hot Springs, Ariz

Monday, June 24, 1901

A. M. Went early to the spring valley and around a little the wall west of the creek. After breakfast I went down the Castle Creek cañon and found the fauna along the river. In P. M. Herbert fished in the fountain and found *Hydroscapha* whereupon we went into the spring valley and found it also there. H. found the genus *Sepidulum* in rotten algae. After dark we went into the main cañon above the hotel and beat bushes by lantern light. Success very poor. Collecting insects attracted by light gave but little result.

## Hot Springs, Ar.

Tuesday, June 25, 1901

A. M. Went out at 5 A. M. into a little ravine right below the hotel and then up to the Spring. The *Hydroscapha* occurs in the lower pool, temperature, 103-105; also a *Hydractinia*. After breakfast I went for half an hour along the sewer below the hotel, did not find much.

P. M. Took the sieve and began investigating the debris along the creek in the spring cañon. Found many things: *Ege*, *Telepna*, *Actolites*, *Lithothamnium*, *Ascellus*, *Scirtes* etc. *Sepidulum* exceedingly common.

At dark went into Castle Creek Cañon; did not get much with the lantern.

To the fauna of the warm creek must be added a *Larion*, a common spider, several *Tettix*, *Ascellus*



Hot Springs, Ar.

Wednesday, June 26, 1901

A.M. Got up at 5 o'clock and beat the Ararias str. in the little ravine immediately north of the stable. H. got a fine new *(Syndesmon barteri Shinn)*  
? *Acusiofera* on cottonwood spring shrub. I got quite a number of *Chrysobothris* etc. on blue-flowering Araria.

After breakfast we got to the Spring cañon and continued rifting with good success. In the lower pool occurs besides *Hydroscapha*, a *Hydraena* and the *Hydroscapha*.

A noon mail came in 3 letters from Dr. Howard including one from Hopkins.

In p.m. we made successful expedition to the "4 tanks". H. climbed up to the second tank, stripped and fished the tank out. *Bidessus*, *Hydroscapha*, *Hydriscus*, *Hydraena*, *Hydroscapha*, *Berosus* etc. hardly anything common with the hot creek.

In evening went with the new lantern in main cañon.

Hot Springs, Ar.

Thursday, June 27, 1901

A.M. Went up early and ascended the hill southeast of the hotel. Did not find anything, and we ascended the Hot Springs range. Yellow Hips on plant preserved.

P.M. Packed up traps. At dark went with lantern in the main cañon.



Hot Springs, Ar.

Friday, June 28, 1901

A. M. Went out early to beat trees and bushes in ravine north of hotel and in main cañon. Found *Terebinthina* in dead mesquite twig infested by Boreogryllids. Went for the last time to the spring. A big

*Derobrachus* was found last night by Mrs. Colhoun.

At 1.15 p. m. took the stage for the Junction where we arrived at 5.30 p. m. It was very hot during the trip and more especially at the Junction.

Had to wait until 1.40 a. m. for the train north.

Williams, Arizona

Saturday, June, 29, 1901

A. M. Reached Prescott at 7 a.m. took breakfast and left at 8 a.m. for Ashfork. Yuccas and Agaves both north and south of Prescott in the hills. Reached Ashfork at 10.30 and found that the Overland Flyer does not run on Saturday and had to wait until 5 p.m. Made two short excursions, met strong winds and found that nearly the entire fauna was gone. either on account of the increased temperature or increased dryness. The Aphidius on the poppy and the genus near Anthrenus on Lycium were still there.

Reached Williams before 7 o'clock p.m. and re-occupied our old quarters.



Williams, Arizona

Sunday, June 30, 1901

Went into Lake cañon in order to get a new supply of sticks for our nets. Found a *Rhyssalus* on *Arceuthobium* sp.; abundant of an *Epicauta* on *Robinia*; *Chrysomelids* in large colony in dead branches of *Robinia*; black Hymenoptera with red thorax on *Robinia*. Water beetles in lowest pool.

P.M. Went along the northern slope of City Hill. *Hymenoptera* on oak, *Cryptorhynchids* and *Pachybrachys* on pine. Large *Agathidium* on oak.

Williams, Ariz.

Monday, July 1, 1901

A. M. Went up the front ravine of City hill and beat the oaks and young pines with tolerable success. Large, rather smooth *Chrysobothris* on oak. Packed

P. M. Went along the west side of City hall. *Longitarsus* on yellow-flowering desert plant. Fine *Clarus* on oak.

Sent packages 34 to 39 (inclusive) to Dr. Howard



July 1<sup>st</sup>, 1901

Package No. 34 - Miscellaneous insects in pill boxes;  
also a few insects in square envelopes

Package No. 35. Insects (mostly Odonata) in envelopes; also  
Miscell. Insects rolled up in paper; also one box with  
pinned Nervos from Hot Springs, Ar.

Package No. 36 Twig of *Robinia neomexicana* containing  
a colony of *Chamaecyba* <sup>robinae</sup> ~~robinae~~ S. Williams Ar.,

June 29, 1901

Package No. 37 Plants

Package No. 38. Some alcoholic vials, all big, labeled  
& dated

Package No. 39 Cigar box containing miscellaneous  
insects in pill boxes

## Flagstaff, Ariz

Tuesday, July 2, 1901

The town burned at 2<sup>30</sup> a.m. Lost many things including alcoholic collection made at Hot Springs. Had to leave the city. At 5<sup>40</sup> train for Flagstaff; arrived before breakfast. Telegraphed to Howard. Bought some things, shoes, lamp, dishes, etc. Went out to the observatory hill; found a dead pine tree infected with the large, brown *Dac* *dracuncul* (near the <sup>ground</sup> bottom) and the small black *D.* all over.

Large *Tonno*, with the usual enemies, but also 2 specimens of a species quite unknown to me. Received telegram from Howard.



Flagstaff, Ariz.

Wednesday, July 3, 1901

A. M. Went along the railroad track west and then on the slope of Observatory hill. Under bark of a dead pine tree (no *Dendroctonus* found) we found *Diagonium*, *Offusus* and a *Tenebrionid*. H. cut some oaks for beating sticks. Along the railroad track a large unicolorous *Phyllotreta* on flowering plant. Large *Obolomyzid* on pine. *Leucanus magnum* on railroad track.

P. M. Bought clothing etc. Went along north side of Observatory hill. Some insects found by beating low plants. *Platycerus* flying about on low plants.

Flagstaff Ariz.

Thursday July 4, 1901

A. M. - Looked over our saved property, wrote to Dr. Howard  
P. H. went over to get the large *Phyllotreta* on *Cleome*  
along the railroad track (plant preserved)

P. M. Went along the sewer cañon; *Atelma* sp. common on  
various plants; *Cryptobidus* sp. and larvae under stone. Otherwise  
very few beetles could be found but H. caught a lot of small  
Diptera etc. including *Calidids*



Flagstaff, Ariz.

Friday, July 5, 1901

A. M. Excursion to the reservoir about 3 miles north of the town and 145 feet higher. H. fished in the reservoir. I beat a solitary oak tree and the pines.

P. M. Went into the little cañon in the Observatory hill.

Aporosa in copula found by H. on Robinia. Xyloterus in dead pine tree. 3 species of Phytophthorus on dead pine branches.

4 Neglige Shirts

2 Under Shirts

3 Handkerchiefs

3 collars

3 Pair drawers

4 " stockings

1 " cuff

Sat. 83

to Sat. - . . . 1 dg 3.50

Sunday . . . 4 dg 3.50

to Monday

7.00



Flagstaff, Ariz.

Saturday, July 6, 1901

A. M. Went across the saw mill; *Dinoderus*, *Tomicus*, *Clerus*, *Aglyptinus*,  
*Monochamus* on logs. Very little found in beating the low plants.

P. M. Packed packages No. 40 (twigs of *Proserpin* from Hot Springs)  
and package No. 41 (miscell. insects in pill boxes, vials or envelopes)

Went into the little cañon on Observatory hill; did not get  
anything worth mention. *Circulifer* in roots of yellow-flowering  
plant. At night went with lantern east of the city but did  
not get anything except mosquitoes

Flagstaff, Ariz.

Sunday, July 7, 1901

Went in a.m. and p.m. on the top of Observatory Hill and collected under bark of pine trees with good success although we did not find anything striking. H. went also in p.m. to the hill opposite. At dusk we investigated a pine tree near the fair ground.

Packed package No 42 (larva) in roots of unknown yellow-flowering plant; No 43 (piece of pine bark containing larvae & pupae of some Tolyrid; No 44 Prime sample pieces of work of destructive *Dendroctonus* in pine.



Williams, Ariz.

Monday, July 8, 1901

Parked our traps at Flagstaff and went over to Williams. Missed the train for the Grand Cañon and put up at the Grand Cañon Hotel. At 3 P.M. went up to Lake Cañon to get net sticks. Two species of *Armoquatus* on *Adiantum*; *Orobancha pinnatifida*, one specimen at on *Spear Mint*. A *Stipoid larva* (quite young) rising in the leaves of same plant may be those of *Wentworthia nervosa*.

*Ergates* is now flying about here as well as at Flagstaff.

Great destruction of the leaf-roller on *Robinia*

Williams, Arizona

Tuesday, July 9, 1901

A. M. Went up the northern slope of City hill. Beat oak and pine. Very minute *Hylephila* on pine; large *Coccinellid* ~~det.~~

P. M. After long delay started at about 3 p. m. for the Grand Cañon where we arrived at about 7.30 p. m.



Bright Angel Hotel, Ariz.

Wednesday, July 10, 1901

A.M. Started <sup>along</sup> the eastward rim of the cañon and came nearly as far as O'Neil's point. Vegetation along the rim composed of rather small pinons and junipers, small yuccas, *Parsonsia*, etc. with extremely few small flowers. Some distance back the usual Pine woods seem to run parallel with the flora of the rim. Many species of *Coleoptera* hitherto not found by us occur here especially on the pinons.

P.M. Started along the rim westward, where the vegetation is a

little ~~more~~ less varied than eastward. At night the common

*Hylastes longus* was attracted by the white tents.

Bright Angel Hotel, Ariz

Thursday, July 11, 1901

A.M. Went along the road to Row's Pt. (east) and collected on  
our way back. Found Chrysophana and a spotted (?) Chryso-  
lophus. A gray Otiorhynchid and Cyphus Cactus are quite  
abundant on the piñon but occur also on other shrubbery. On  
Yucca no trace of Promela can be seen at present.

P.M. Quite a shower early in p.m. Went again east along  
the rim: <sup>(Epitrix nevadensis)</sup> Epitrix on "Corymbifera plant." Cleonus on various  
plants. Cleonus spiralis on Yucca.

— probably *Hicodione* sp. —  
of a *Corymbifera* (living on a *Corymbifera*)  
—



Bright Angel Hotel, Ariz.

Friday, July 12, 1901

A. M. On account of the multitude of visitors I had no breakfast. Went along the brink westward. *Melanophila* on pine; cut *Pityoplathorus* from Pin piñon twig. Great multitude of *Cyphus* on piñon

P. M. Went on rim eastward but did not find anything particularly new. Crossed the carriage road and beat the oak ( *Quercus*, *Eurohormus marginipennis* )

Herbert went down the cañon to the "Willows," brought home a set of insects quite different from those occurring on the rim. There is Cat's claw acacia, Grape vine, Cane etc. on the place and running water. The place is stated to be 4000' below the hotel and 1700' above the river.

Bright Angel Hotel, Ariz.

Saturday, July 13, 1901

A.M. Went eastward along the river; cut a *Partheocis* from *Pityophthorus* galleries in piñon twig; a fine *Pogonocherus* from dead branch of piñon. queer appearance of dead twigs of piñons. Found living *Aridea* under stone, one *Lachnosternus* and *Myrmecleon* in water tank.

Herbert went again down to the "Willows" and collected an additional lot of *Odonata*, grasshoppers; the *Coleoptera* have not been examined by me.

I went again on the river eastward but did not find anything new except a *Meloid* on a weed within the burned woods.



Arizona

Sunday, July 14, Williams, Arizona

Packed our traps at the Bright Angel hotel and took  
at 2 o'clock p.m. stage for end of track. At that point  
Hubert got a few trays from desert plants and a number of  
*Geothlypis aethiops* on piñons. No indication of the nature  
of their food could be seen on the trees.

Arrived at Williams in the evening and took quarters in  
the Grand Cañon hotel.

Monday, July 15, 1901, Williams, Ar

A. M. Went out at 5 o'clock into the first ravine north side of City well; beat from pine a specimen of *Acanthodinus* and from oak 3 specimens of a large *Cryptobius*.

Went out to Lake Cañon but did not get anything of importance.

P. M. Packed 4 boxes: Package No 45, *Odonata* and *Orthoptera* in envelopes and wrappers; Package No 46, *Microlepidoptera*, pinned; Package No. 47 *Miscell. insects* in pill boxes; Package No 48 *Miscell. insects* in vials.

Went out with the lantern but with the exception of *Anelastus suryi* nothing came to light.



Williams, Arizona

Tuesday, July 16

A. M. Went out early along north slope of City hill but did not find anything of importance. We both then went to the west side of City hill, beating profusely the *Prosopis* shrubs; found *Cryptorephalus*, a large *Clytus*, one specimen of *Renocis*, *Sitona*, large *Oncophanes*, *Atalapha* and *Coccinellids*. Herbert found on oak a large *Staphylinid*.

P. M. Went to the upper end of the Brickdam Lake where in the mud there is an abundance of *Staphylin*, *Bombardier* and small *Blattellids*. The stones and the twigs of willow at that place are densely covered with (?) *Trichoptera* eggs, some of them being parasitized. We never saw anything of the imagoes. A *Thysanus* occurred on oaks. Red moths and correspondingly colored *Lemnids* were flying.

Williams, Ariz.

Wednesday, July 17, 1901

A.M. Went along north side of City Hill. H. caught a beautiful Longicorn on oak. I found some Longicorns on pine. We discovered the *D. galleria* of the *Penoria* on *Purshia*. H. found a fine *Conotrachelus* on pine (the second specimen).

The box with supplies finally came, the outfit is somewhat incomplete.

Packed to Washington box 49. containing 3 tin boxes with living Lepidoptera larvae, 1/ from *Purshia* (2 specimens, 1 specimen) 2/ from oak, 3/ from unknown hosts (all)

Quite a number of moths came to electric light at night



First Class Bar in Connection.

Conducted on European Plan Only.

\*—OFFICE OF—\*

# THE GRAND CANYON HOTEL,

C. E. BOYCE, Proprietor.

HEADQUARTERS FOR COMMERCIAL, STOCK AND MINING MEN.

WILLIAMS, ARIZONA, *Thursday, July 18* ..... 1901

A. M. Went up the first ravine of city hill. Got a fine *Xyloterpes* and a *Hyperaspis* on dead pine leaves. *Ptychopterus* ltho. One *Listrocallosus* found eaten by a *Sceloporus*, another dead under stones.

P. M. Herbert lost his chisel so we went up again but did not find it. Cut a fine sample of *Ptychopterus* getting from dead pine twig.

A few moths & longicorns at electric light

First Class Bar in Connection.

Conducted on European Plan Only.

\*—OFFICE OF—\*

# THE GRAND CANYON HOTEL,

C. E. BOYCE, Proprietor.

HEADQUARTERS FOR COMMERCIAL, STOCK AND MINING MEN.

WILLIAMS, ARIZONA, *July 19* ..... 1901

Package No 50. Miscellaneous insects pinned & mounted.

Package No 51 Three bundles 1) Aspen bark with galleries of new Scolytid, Williams, Ar. July 9, 1901 2) Branches of Pinus sp with galleries of Pityophthorus. Flagstaff, Ar., July 6, 1901. 3) Bundle of Purshia with galleries of Renocis u. sp., Williams, Ar. July 17, 1901

Package No 52 Willow twig covered with Trichopteran eggs.

Williams, Ar., July 16, 1901; 2) Pine branches with galleries of Pityophthorus, Flagstaff, Ar. July 6, 1901



WILLIAMS, ARIZONA, ..... 190

Friday, July 19, 1901

A. Mr. Went into the little valley west of the town. There was great scarcity of insects. On <sup>dead</sup> pine, the *Megdalis* are still present; on oak, Mr. Barber took a second specimen of a longicorn beetle quite unknown to me. A very small ? *Eumecurus* on living pine. Coleopterous larvae in fungus.

Packed and sent to Dr. Howard, packages 50, 51 and 52. For contents see following page.

Toward evening went on west side of City hill opposite head of brick dam lake. Found a *Malthinus* and *Dylophilus* on oak. H. got a *Oligoneurus* on my hat [but I did not see it in putting up the specimens].

At light we caught two species of *Listrochelus*, 1 species of *Diplostaxus*, 1 specimen of *Polyphylla* and *Anelastes*. On returning home I still found a few *Oedemerid*.

WILLIAMS, ARIZONA, ..... 190

Saturday, July 20, 1901

A.M. Went along north slope of City Hill beyond second ravine. *Renocis* boxes also in extremely thin twigs of *Parshia*. It found 3 branches of *Parshia* which had been girdled from the inside by a *Longicorn* larva. Found a *Neodyalis* on oak.

P.M. A thunderstorm moderated the temperature.

Sent Package No. 53 (1 box *Microlepidoptera*; insects in full boxes and envelopes) to Washington.

In evening went out to second ravine but no insects came to light. Got a large *Fulgorid* on oak.



## WILLIAMS, ARIZONA, ..... 190

Sunday, July 21, 1901

Went out for the whole day in the upper Lake Cañon. Investigated the dead Spruce near "the house." The Scolytus is still in the larva state, but one perfect specimen was found in the bark; cut out with great trouble some pieces of bark and prepared two for shipping; larvae of Trogosita conspersa and a single Plegaderus were found in the galleries. The smaller fungi were well rotted with holes; the smaller ones lead into the galleries of a Pityophthorus (specimens all dead); the larger holes only lead into short initial galleries and only in one of them a dead specimen of a small Scolytus was found. What appears to be the same Scolytus was beaten from a healthy Spruce tree near by. Another, small dead Spruce tree was evidently killed by the large Scolytus but no good samples of the galleries could be obtained.

Found a specimen of Medaenophila running on the trunk of another Spruce the top of which was dead.

Went higher up in the cañon where there are thickets of Aspen. Found many Nothofagus under loose bark of Aspen. Secured a mouse overtook us and we went back.

On the way to the cañon filled some water bottles from the upper lake

WILLIAMS, ARIZONA, July 22 ..... 1901

Mailed to-day

Package No. 54 - Twigs of *Purshia 3-dentata* containing living

specimens of *Renocis* n. sp., Williams, Ariz., July 20, 1901

Package No 55 - Branches of *Purshia 3-dentata*, girdled (from the

inside by a longicorn larva, probably *Aneflus*; the living larva  
still inside.

Package No 56 - Two pieces of Spruce bark, showing galleries of

*Scolytus* sp.; living larvae of the *Scolytus* are in the bark.

Williams, Ariz., July 21, 1901



WILLIAMS, ARIZONA, ..... 190

Monday, July 22<sup>nd</sup>

Weather cloudy. Hubert not feeling well. Packed packages 54, 55, 56

(for contents see following page) and dispatch material.

Went alone along west slope of City hill and beat the oaks. Found  
*Brachyarrhena* sp., *Oryssomus* (2 specimens), *Orthoporus* sp., a longicorn  
allied to *Staphylinus* and a *Rhopalophorus*. Found *Tachygaster* on  
*Robinia*.

Nothing came to the electric light on this evening.

## WILLIAMS, ARIZONA, ..... 190

Tuesday, July 23<sup>rd</sup> 1901

Went out into The Lake Cañon into the region of the big Aspen and Spruce.

At the "house" and a some distance further <sup>on Spruce</sup> found specimens of a extremely large *Xylophilus* both ♂ and ♀. The large *Coccinellid* with enlarged elytral margin was also not rare on Spruce; *Coccinella abdominalis* etc, a single specimen of a *Chlorocorus*. At our farthest point I got *Hylerinus subsericeus* from Spruce, <sup>a specimen of *Sialia*,</sup> and also a specimen of *Pityoplithorus* cut from spruce twig. A large *Pachybrachys* rare on spruce. *Dorytomus* from Aspen. *Peltis* under aspen bark infested with red *Tomicæ*; a *Tenebrionid* under same condition. *Cis* sp. in fungus in which Hubbard found *Epuræa monogama* at Teano.

Packed and mailed package 57 viz. 1 tin box of *Arctiid* larvae found yesterday by Herbert under a rock near railroad track; and one tin box of caterpillars (*Orgyia* etc) found on Spruce to-day.

Some fine *Coleoptera*, *Pluriotis*, *Tragosoma*, *Deleaster*, *Listrochelus* and *Noctuidæ* came to the electric light



## WILLIAMS, ARIZONA, ..... 190

Wednesday, July 24, 1901

A.M. - Went along the northern slope but did not find anything very striking. Two specimens of the fine unknown *Cerambycid* ever found on oak. A *Monarthron* or *Guathotrichus* on oak. H. found a *Pluristis* on young pine trees. *Polyphylla* occurs under the same circumstances.

Packed and sent to Washington Package No. 58 (two cigar boxes with 3 small boxes of *Micros*; pill-boxes, envelopes etc) and Package No 59 (one cigar box of pinned *Lepidoptera*).

P.M. Went into the park-like country northwest of the town. Found an *Arida* and *Romulea simplicifolia* under boards; *Peltis dentata* on fungus growth under bark of pine stump. *Stelgidium* on *Serapias*-like plant; *Epicauda* on *Solidago*; the pine trees were empty of insects, save two small *Phidippus* near *Hedysarum* *truncatum*.

WILLIAMS, ARIZONA, ..... 190

Thursday, July 25, 1901

A. M. Herbert's foot being sore I went alone into the upper Lake cañon.

Got an additional set of the new *Xylophilus* on Spruce with some fine *Stenocranus*, also a fine *Hyperaspis*. The large *Coccinella vulturina* is extremely common on Spruce



WILLIAMS, ARIZONA, ..... 190

Friday, July 26, 1901

A. M. Went again into the upper Lake cañon. Found one specimen of *Philinus* which lives in Aspen; found also a *Diceria* (beetle) dead in its hole in an Aspen tree. Sifted rotten wood at base of an old spruce tree and found *Scaphiura*, *Liodis* and *Stenus*. Found a fine moth on a flower head of *Achillea* caught by a white spider.

Herbert went up the Brickdam cañon.

P. M. Packed the following packages: Package no 60, pinned insects, mostly *Lepidoptera*; Package no. 61, alcoholic specimens, and some *Coleopt.* wrapped in paper; Package No 62 3 boxes of pinned *Micos* and insects in pill boxes; Package No. 63, *Purshia* branch containing a *Longicorn* larva, and oak leaves infested by *Microris*.

Windy at evening and hardly anything at light.

WILLIAMS, ARIZONA, ..... 190

Saturday, July 27, 1901

A. M. Went into the upper Lake cañon. Found *Xylophagus* and *Dasytes* on Spruce, *Distochelus* and *Diplostaxis* under stones; ruffed in the Aspen thicket almost without success. Herbert went higher up along the slope of the mountain; found *Cicindela* and a *Pygmaea* or *Pygmaea*; ~~Black *Leptura* accidentally~~ he also found blackish *Indagophila* common on Spruce. A black *Leptura* found flying. Went home through the cañon and fell in with heavy rainstorm.

Shipped the packages made ready yesterday.

One specimen of *Pluridius* at light.



WILLIAMS, ARIZONA, ..... 190

Sunday, July 28, 1901

Went alone along western slope of City hill. Small *Chrysobothris* (several specimens) and a few *Pityoplathorus* on freshly felled pine; very small *Xylophilid* (one specimen) *ditto*. *Cytus* sp. (one specimen), *Attagenus* (red thorax), *Cryptorhynchus*, green. Leafhoppers and grasshoppers on *Purshia*. 2 species of *Xylophilus* (one black, the other with orange thorax and humeral spot on oak).

Herbert went along the western slope of City hill and found a second specimen of *Plusiotis* on young pine; also found the black *Cantharis* on *Cleome*.

Very heavy rainstorm in the afternoon.

Williams, Ariz.  
Monday, July 29, 1901

A.M. Went alone up first ravine on north side of City hill.

Found 2 specimens of the small *Xylophilus* on Pine; *Diagonium*,  
and *Othius* ~~on~~ pine bark; *Clytus* sp. on pine ~~leaves~~ and oak;  
*Pityophthorus* on pine, *Othobryus* on green pine. *Rhyssalus* on  
pod of *Asclepias*

Herbert went up the Lake cañon brought home a *Leptura* and  
an *Athous* ~~lithus~~ not found by us.

Heavy rains in p.m. and evening. Two *Phaenicia* at light.



Williams, Ariz.

Tuesday, July 30, 1901

Packed preparatory to leaving for Las Vegas. Packed for mailing to Washington the following packages:

Package No. 64 Pinned insects, mostly Noctuidæ

" " 65 Two small boxes of spread Micros

" " 66 Miscell. insects in vials, pill boxes, envelopes

" " 67 Branches of Spruce with galleries of *Pityophthorus*

" " 68 Pieces of Juniperus " " " *Phloeosinus*

Herbert found in the tent a Lampyrid new to our collection. He also

went along the north side of City Hill, took some more specimens of

*Physometrus* on *Arctostaphylos*

Left at 6.50 p.m. for Winslow, where we arrived at

10.25 p.m.

Winslow, Ariz.

Wednesday, July 31, 1901

A. M. Went 2 miles north toward the row of cottonwood trees bordering the little Colorado, and collected mostly beneath the various desert plants and those plants growing in the sandy bed of one old branch of the river. The fauna is totally different from that at Williams and also totally different from that of the plains of southern Arizona. It must be a branch of the upper Sonoran region.

P. M. Repeated the same procedure.



Las Vegas, ~~Aug~~ N. Mex

Thursday, August 1, 1901

Left Winslow at 8 55 a m and traveled the

entire day, reaching Las Vegas at 12 50 a

Friday morning

Las Vegas Hot Springs, N Mex  
Friday, August 2, 1901

Left for the Hot Springs at 11.25 a.m. and took  
quarters at the Monticuma hotel. Went at once out  
for a little excursion and found 3 Meloides and one  
Anthrenomus & a composite flower with perianth  
surface.

P.M. Went up the cañon for about 2 miles; collected at  
the river; collected on willow, beat one Spruce tree  
and some pine trees. Saw many mayflies and  
various birds.



Las Vegas Hot Spring

Saturday, August 3, 1901

A. M. Went along the eastern slope of the hills, vegetation  
small oak shrubs, young pines with here and there a larger  
pine, grassy spots occur. From pines a *Urochloa* *sp.*  
and one specimen of a pocket *Synanthus*. On oak a *Balsamorhiza*,  
rare. On pine stumps, *Cis*, *Salix*, *Hordeum*, *Lupinus*,  
*Sylvestris*, *Pseudotsuga*. *Tomurus* on bark of more  
recent stumps.

P.M. Went up the cañon, crossed the creek, up among the oak bushes (*Pachyphloe*) and went up a narrow ravine. *Arabis* in enormous number of flowering. *Angelica*. Lots of things in fungi on old Spanish Stump.

Las Vegas Hot Springs, N. Mex.  
Sunday, August 4, 1901

Package no 109 Containing 2 large boxes, one  
with insects in pill boxes, the other insects in envelopes.

Package no 110 Containing 4 small tin boxes (see follow).

I) Box of Hyman's cells found in stone, Las  
Vegas Hot Springs, N. Mex. Aug. 3, 1901; II) *Agrotis*  
larvae found on fungus growth under bark of old pine  
stump, Las Vegas Hot Springs, N. Mex., Aug. 3, 1901; III)  
larvae found under stone bark, Williams, Aug.  
July 26, 1901; IV) Coleopt larvae (one specimen) found  
living in half-rotten wood of Pines of Williams, Aug.  
May 1901.

(1)  
Package no 111 Cont. of 2 tin boxes 1) *Longhorn*  
larvae living in roots of desert plant (*Atriplex*?) Williams  
Aug. July 31, 1901 - 2) Two species of *Culex* larvae  
(*Cyphostylus* larvae of *D. venusta* group, and *E. cyphostylus*  
sp.) Las Vegas Hot Springs, N. Mex., Aug. 2, 1901



Las Vegas Hot Springs, Mex  
Sunday  
~~Saturday~~, August 4, 1901

A M. Parker's packages 70, 71, 72 and overhauled  
baggage.

P M. Went up the hill back of the hotel and worked  
the piñon trees: *Agave*, *Hypericis* (several forms)  
*Pithecellobium* (several species).

One specimen of spotted *Syntherisma* on *Pine*

Herbert beat the grasses and low plants and went  
again up the machine to the stumps with fungi he found  
a lot of things not hitherto observed.

Las Vegas Hot Springs, N. Mex

Monday, August 5, 1901

There was a drizzling rain the whole night and early morning. H. went down town. I sifted the contents of the bag collected yesterday by H. in the ravine across the creek: In the earth there were numerous Trichoptera, some Philonthus and Homalotae, Falagra, Abraxus (1 specimen) Megacritus (one specimen) Onalium (1 specimen) Hister, Oulophagus, Ptomaphagus, Cytusa (one specimen) Bolitobius (one specimen) Onorita discoides. Found a fine Cleus on Pinus y. and 3 Oedemids on a painted fence post.

P.M. Went up the hill to the reservoir; various small Coleoptera hitherto not noticed were found in the water. H. beat the pines; found a Chloronotus. In a rotten fungus we found several (!) Lycophanes.

Rain in the evening and during the night. Quite a number of moths came into the hotel.



Las Vegas Hot Springs, New Mex.

Tuesday, August 6, 1901

Went up the cañon for nearly 3 miles (where we had been on the first day of our stay); did some extended beating of the Spruce trees. *Hylesinus sericeus* is common, but no dead twigs nor any other evidence of its galleries can be seen. A very large *Pityophthorus* was also beaten from Spruce. Other Coleoptera peculiar to this tree are *Aulacoseris*, a *Cephaloscyminus*, a *Cardiophorus*, a large *Otiorhynchid* (also occurring on pines), a spotted *Symnus* (also occurring on pine); other insects: a very large *Hemeroselinus*, a *Geometrid* larva and another *Lep. Dpt. Larva*. On pine: a very small *Phid* near *Enobius*; on *Solidago*, a large unicolorous *Malachid*; on unknown bush, a red *Anthrenus*; on blue-flowering plant, an *Aphthosa*. *Lucanus magana* rather abundant on railroad track: seems to live in the old ties.

Rain late in afternoon and evening.

Found on the windows of the "Carrion" this morning quite a number of *Heterocerous Lepidoptera*.

Gray *Orchestes citta* on Willow or Alnus.

Fragments of *Lecontea dimicollis* were found by Herbert under pine bark.



Las Vegas Hot Springs, N. Mex

Wednesday, August 7, 1901

A. M. Packed for Washington Packages No. 73 (terminal twigs of Piñon with *Pityophthorus* galleries); No 74 larger twigs of Piñon with *Pityophthorus* galleries; No. 75 *Geometris* larva, and <sup>a few</sup> ~~some~~ other *Agrotis* larvae from Spruce. - All from Las Vegas Hot Springs, N. Mex. Aug. 4-6, 1901.

Went out into the scrubbery right west of the hotel and found among ants like stoms *Heterius*, *Chrys* and a ~~very~~ remarkable *Staphylin*.

Around the roots of a rotten plant a *Carpophilus* and a *Stelidota*.

Under bark of pine stump a *Zopherus* and many *Trox*.

Went down town at noon and returned toward evening.

Herbert went up the ravine across the creek and collected among the pines.

Extremely heavy rain storm in the evening.



Las Vegas Hot Springs N. Mex

Thursday, August 8, 1901

Went a.m. in the scrubbery directly west of the hotel in search of additional myrmecophilous insects but we found only *Fortigea* among the small black ant. Found an *Euthia* in sifting the rotting plant among which I found yesterday the *Carpophilus*

to  
In P.M. went alone up the reservoir; found an *Hetaerius* among *Aphaenogaster*; beat the piñon trees in going up, and the Junipers on Top of the hill. Cut a number of *Pityopthorus* from terminal twigs of piñon and found a broken twig on a Juniper bush infested by a *Phlaeorinus*. Cut out 3 or 4 specimens and preserved the twig.

Herbert went with his beating net up the cañon, crossed the creek and found various things not hitherto noted by us

There was to-day only a small shower at noon.

# Las Vegas Hot Springs, N. Mex.

Friday, August 9, 1901

Went out up the creek to the crossing, waded the creek and went back on the other side to the first ravine which seemed to have a permanent little stream of water. In very wet moss we found *Laccobius*, *Phillydorus*, *Hydrobius*, *Quedius*, *Phylanthus*. Sifting under old leaves found only *Microbanus* and *Corticaria*. Found a dead Spruce tree which showed on one side the galleries of *Scolytus* (a small, dead specimen was beaten from a small dead tree). There were the borings of *Xyleborus* (1 specimen found) and *Platypus* (2 or 3 specimens found) and the dead body of a *Xylotrechus*; found also two pupae of a *Longicorn* and what is no doubt the larvae of the same species, also one larva eaten up by a *Hymenopt.* parasite which just had ~~just~~ <sup>just</sup> spun up. Diurnal *Lepidopt.* in web of *Carria* with spring pupa. Went down beyond last ice house, could not cross the creek and had to go back. - Herbert caught a fine *Eucnemid* on the way near the ice house. - ~~The following~~



Las Vegas Hot Springs, N. Mex

Saturday, August 10, 1901

Packed a.m. 6 packages (see enumeration next page) for Washington. Went down town at noon and got caught by a big rainstorm. Went late in p.m. up the hill to the reservoir but did not find anything of consequence.

Herbert went in the forenoon in the shallow ravine back of the engine house and brought back many *Belammina*.

Las Vegas Hot Springs, New Mex

Saturday, August 10, 1901

Packages sent to-day to Washington:

Package No. 76. - Pinned Micros & Insects in pill boxes

or wrappers

Package No 77. Pinned insects

" " 78 " "

Package No 79 - Two tin boxes. <sup>a)</sup> Rhopalocerus larvae on C. Cassia  
(Las Vegas Hot Springs N. Mex) - b) Lepidopteran  
larvae on Pinus & pinus. Las Vegas Hot Springs

Package No 80 - Two small tin boxes - Saw-fly larva and Lepidopteran  
larva on Juniperus (Las Vegas Hot Spr) - Terminal  
twigs of Pinus sp. with Pityophthorus. L. Vegas Hot Spr

Package No 81 - Branches of Juniperus sp. with <sup>larvae</sup> colonies of  
Phloeosinus n. sp. Las Vegas Hot Springs, N. Mex. Aug. 7, 1901



Las Vegas Hot Springs, New Mex

Sunday, August 11, 1901.

A.M. Went in the little ravine across the creek back of the engine house. H. beat the oaks of which there are 2 species there and found a number of *Balaninus*, apparently two species which seem to live promiscuously on the two oaks.

Found a number of *Coronoid* beetles on underside of a *mirce* chip (a *Rhizophagum* ~~also~~). A short distance above this ravine is an open <sup>meadow</sup> ~~grass~~ like opening, but the fauna is very poor, a *Pristonella* being the ~~best~~ best species. H. caught a number of *Psocid* flies sitting on the underside of overhanging rocks near water.

P.M. Rain threatening, but not coming, we stood at home. I overhauled the alcohol material and went out for a few minutes just before supper but did not get anything remarkable except perhaps a *Cyrtura*.

A *L. vorkelii* came to light in the evening.

Las Vegas Hot Springs, N. Mex

Monday, August 12, 1901

Went down the valley about a mile from the hotel. Sifted leaves under a group of oak bushes on the bank of the valley; found *Staphylinidae* and one *Scydmaenus*. Beat the willows along the creek and found of course a fauna different from farther up the valley, but the fauna is not very rich.

In P.M. made a short excursion up to the reservoir; fished a number of species from the water. Found *Euryura* among a small black ant.

Orange colored hemiparas common on thistle lower the railroad track; Black *Epiranta* and *Chalcidopneustes* as well as yellow *Epiranta* on flowers of "stiffly" Composite.

Large *Otiorynchid* (3 specimens) from tangles of *Suaeda* growing over the willow bushes



Las Vegas Hot Springs, N. Mex

Tuesday, August 13, 1901

Went out for a short excursion directly west of the hotel, parallel with the cañon. Found several *Formica* with the small black ant, also a *Syrphid* under a stone where there was a colony of same ant. H. found a dead specimen of *Xylomyges* in its holes at base of pine tree. H. also discovered here the presence of a cone-inhabiting *Scolytid* in the cones of piñon. A new (to us) *Acanthodes* was found on flowers.

Went down town at noon.

P. M. Went up to the reservoir. Found more piñon cones infested by the *Scolytid* (8 specimens in one). Found a large *Phlaeothrips* on Juniper; also a number of a small *Hyperaspis* with yellow spots on Juniper. Discovered a *hartherius* in the *Pityophthorus* galleries in terminal shoots of piñon. Fished the debris from the reservoir and found again several species new to our collection.



Las Vegas Hot Springs, N. Mex

Wednesday, August 14, 1901

Went up the hill across the creek behind the engine house. Beating the oak brush we found *Belaninus* and *Otidocryptus*. Near the top we found a few piñon trees apparently recently killed but there was no *Dendroctonus*. One species of *Tomisus* (near *pinus*) had been extremely common under the bark and H. found one larger species in one specimen. H. found the *Larconotus* with deeply impressed thorax in the *Tomisus* galleries and I <sup>beat</sup> found another *Larconotus* from the dying limbs. A *Pityophthorus* occurred sparingly on these trees. H. found a piñon cone (preserved) in which there were 42 specimens of the new *Pityophthorus*.

P.M. Went bathing; found two specimens of *Sphaerophorus* on the sloping lawn in front of the hotel. Moderate rain storm.



Las Vegas Hot Springs, New Mex

Thursday, August 15, 1901

A.M. Went directly west of the hotel along the slope of the hills until we came to a pine tree that had been killed by lightning. Large *Pityophthorus* occurs plentifully in moderately large and also in very thin twigs. *Pityogenes* varieg. dett. H. found an elongate *Toussieu* under bark and also one specimen of a small (brown?) *Dendroctonus* in its cell within the bark. Took a lot of small and thick branches along. A two-spotted *Syrphus* and two specimens of a *Cecidomyid* were beaten from the dead twigs. — Found a beautiful *Staphylinid* resembling *Philoterus* and another ~~very~~ very slender species with very short elytra among a brownish very hairy ant. This ant occurs apparently only on granite soil under stones not deeply interred; forms rather small colonies and has no winged forms at present. Small 4-spotted *Syrphus* on living pine. — Blue *Parasitellus* under bark of above pine.

P.M. H. went down town. I went into the direction of the pine mentioned above and found a lot of additional specimens of the two myrmecophilous *Staphylinidae*. A colony of this ant under leaves within an oak shrub gave opportunity of lifting the beetles.

Las Vegas Hot Springs, N. Mex

Thursday, August 15, 1901

Packages mailed to Washington

August 15, 1901

Package <sup>82</sup> - Piñon twigs, containing *Pityopliothorus* and other

insects. - Also vial with some twigs from another tree

Package -83 - Piñon twigs containing *Scyd. h. s.*

Package 84 - Piñon cones

Package 85 - Pinned insects

Package 86 Alcoholic material

Package 86<sup>a</sup> Supplies returned: Rubber stoppers



Las Vegas Hot Springs, N. Mex

Friday, August 16, 1901

Went again west of the hotel along the slope of the hillside to get some more of the myrmecophilous *Staphylinidae* found yesterday. We found a number but not so many as we had expected. Found a *Ozognathus* on my umbrella cloth: it may have come from the pine tree or from the underside of a stone. Beat the old pine trees along the slope of the hill and found several specimens of the 2-spotted *Signatus*. Siefted under the oak shrubbery and found several specimens of a *Conotrachelus*. Found a *Lachnosternus setula* (?) crawling about. H. found an *Embepton* under a stone, and a *Zorcelis* under a stone close to the base of a pine tree.

P. M. Weather very threatening we went up to the reservoir. The hairy ant occurs also on limestone ~~in~~ soil and I found one specimen of the slender *Staphylinid* among them. The small yellow-spotted *Hypocryptus* occurred again on juniper.

Las Vegas Hot Springs, N. Mex

Saturday, August 18, 1901

A. M. Went along slope of hill west of hotel. Found the rare small *Xylophilus*, one specimen, on pine. Found an *Epiporus* and its larva on mould under bark of pine stump. Found several *Fustiger* among small black ant. Discovered 13 specimens of *Xyloxytes* at the roots of an apparently healthy old pine tree, the beetles occurring in holes 4 or 5 inches below the surface; no females or larvae could be seen.

Went down town at noon and mailed packages 87 and 88. (see next page)

P. M. Went across the railroad bridge. Found several specimens of *Fustiger*. Nothing else of any consequence was found, although the locality (oak shrub) seems well adapted for rifling.

Big rainstorm toward evening



Las Vegas Hot Springs, N. Mex

Mailed, August 17, 1901

Package No. 87. - Consists of 2 Cigar boxes containing branches and twigs of *Pinus* sp. infested by *Pityoplihorus*, *Pityogenes* and possibly *Cerambycidous* larvae.

Las Vegas Hot Springs, N. Mex. August 15, 1901. The tree from which these branches are taken has been killed by a lightning stroke.

Package No 88. - Two thicker branches of the same pine tree as just mentioned, containing *Cerambycidous* and probably *Scolytid* larvae (*Tomiscus* and *Pityogenes*).

~~Package No. - Cigar box with miscellaneous insects in  
pill boxes or paper wrappers.~~

## Las Vegas Hot Springs

Sunday, August 19, 1901

Drizzly rain the whole day. Packed up traps preparatory to our leaving homeward. Found an *Epitragus* on the sidewalk below the hotel and an *Equestris* came into my room.

Prepared for mailing packages: No. 89; alcoholic vials;  
No. 90: a/ pitor cones, b/ 2 *Arctid* cones; Package 90<sup>a</sup> enclosed.  
supplies (vials) returned.



Sent to Dr. Howard

June 16, 1901

Package No 30. Contents of two shallow cigar boxes

a/  
~~Package No.~~ - - - Miscellaneous material as follows:

Vial 61 - Miscell. Spiders

62 " "

63 Large Spider & Solpugid

64 Harvest Mite with eggs, under stone

- 65 Colony of yellow Larvae with Rhiparia

- 66 Colony of Camponotus

- 67 Very large Centropilum

68 Various small vials: (Platid) larvae under leaves / 2 vials

with larvae of Epierus and Hirta punctiger 7/ Larvae colony with

2 vials with Pseudoscorpion, 4/ Two spiders, with eggs

- 69. Myrmecophila sp. among Larvae sp.

- 70. Two unknown Scarabaeid larvae

71. Imagines of destructive Dendroctonus all from a single pine

tree in ravine north side of City Hill

- 72 Ptilium n. sp. from under bark of Pine stump among the debris  
of Pseudoscorpion

- 73 Duplicates ~~from~~ of no 71 from another tree
- 74 Colony of *Lachnus* sp. on *Pinus* sp.
- 75       "       "       "       "       " *Pinus* sp. }
- 76 Colony of ants.
- 77 Larva, pupa and imago of *Hemipterum* sp. in dry Yucca stem  
Work in separate wrapper (not yet sent)
- 78 *Tomicus* sp. with larvæ and pupæ from under ~~pine~~ bark  
of pine log in Brick dam cañon.
- 79 Unknown Coleopterous larva from under pine bark (dead tree)
- 80 Imagos of *Tomicus* n. sp. (Work 609)
- 81 Larva and imago of *Syrphus coniferarum* on ~~near~~ young  
pine trees (collected on May 26).
- 82 *Julus* and *Polydesmus* under stones
- 83 Young *Cleodes* larvæ(?), Lampyrid larva in ground, *Throctes*  
on oaks, *Thrips* on pine
- 84 Aquatic hemipterous larva found under stones in dry bed of creek
- 85 Larva of *Proctos* sp. in dry stem of Yucca
- 86 *Phloeosinus* sp. on Juniper. (Work sent on) found dead
- 87 *Scolytus* sp. in Spruce bark (found dead)
- 88 *Dactylopus* (?) on roots of red-flowering plant



-No 89 Aphid on root of red flowering plant (same as  
mentioned under 88

No 90. Imagos of the Aspen Scolytid (work sent before)

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6/ Miscellaneous insects in pill boxes

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Package 31 Diurnal Lepidoptera and Odonata  
in envelopes.

Box 33 Sent June 20, 1901

a. Living Specimens

Box 33

- 1) Square tin box containing larvae and pupae of *Axiom* sp. feeding on Oak *Leucicium* (*Quercus engelmannii*)  
Prescott, Ar. June 19, 1901
- 2) Two round tin boxes containing 3 Lepid. caterpillars from *Juniperus* sp. Ashfork, Ar., June 18, 1901

b. Alcoholic specimens

- Vials 90 & 92 Alcoholic specimens of *Axiom* (see above no 1)
- 93 Contains smaller vials with miscellaneous insects
  - 94 Colony of *Camponotus*. Prescott, June 19, 1901
  - 95 " of *Lasius* *blackus* on *Pinus* sp., Prescott, June 19, 1901
  - 96 Spring tails under old pine bark, Prescott, Ar. June 19, 1901
  - 97 Miscell. Spiders, Prescott, Ar. June 19-20, 1901
  - 98 Colony of ants under stone, Prescott, Ar. June 19, 1901
  - 99 Larva of *Neodilobus* (and imago) in stems of *Helianthus*; Larva of unknown *Pimplid* found also. Ashfork, Ar., June 18, 1901
  - 100 Colony of ants, Prescott, Ar., June 20, 1901



USDA Notes	Package no.	Plant name	Locality
Breeding no.			
9410	2	Juniperus	Williams Ariz.
9411	6	Quercus gambelli	" "
9424	21	Pinus ponderosa	" "
9425	28	Yucca	" "
9426	29	Quercus gambelli	" "
9436	33	Quercus arizonica	Prescott Ariz.
9446	43	Pinus ponderosa	Flagstaff Ariz.
9451	54	Covania neomexicana	Williams Ariz.
9452	55	Covania neomexicana	" "
9453	56	Abies concolor	" "
9465	71	Artemisia	Winslow Ariz.
9468	73+74	Pinus edulis	Las Vegas Hot Springs New Mexico
9476	80	Pinus ponderosa	" " " " " "
9477	81	Juniperus utahensis	" " " " " "
9481	84	Pinus edulis	" " " " " "
9482	84	" "	" " " " " "
9483	82	" "	" " " " " "
9486	87	Pinus ponderosa	" " " " " "
9487	90	Pinus - edulis	" " " " " "

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\*—OFFICE OF—\*

# THE GRAND CANYON HOTEL,

C. E. BOYCE, Proprietor.

HEADQUARTERS FOR COMMERCIAL, STOCK AND MINING MEN.

WILLIAMS, ARIZONA, July 19, 1901

None of the  
packages sent with this  
need attention

Dear Dr. Howard,

I mail you with

this 3 packages, as follows:

Package No 50 — Miscellaneous insects, pinned or mounted,  
all labeled and dated.

Package No 51 — Contains 3 bundles; 1) Aspen bark, with  
galleries of new Scolytid (sent before); Williams, Ar., July 9, 1901; 2) Branches  
of *Pinus* sp. with galleries of *Pityophthorus* sp. sp., Flagstaff, Ar. July 6, 1901;  
3) Branches of *Purshia* with galleries of *Renocis* n. sp., Williams, Ariz.,  
July 17, 1901.

Package No. 52 — Contains 2 bundles: 1) Willow twig, covered  
with (?) Trichopterous eggs, Williams, Ar., July 16, 1901; 2) Pine  
branches with galleries of *Pityophthorus* sp., Flagstaff, July 6, 1901

Yours sincerely

E. A. Schwarz



\*—OFFICE OF—\*

## THE GRAND CANYON HOTEL,

C. E. BOYCE, Proprietor.

HEADQUARTERS FOR COMMERCIAL, STOCK AND MINING MEN.

WILLIAMS, ARIZONA, July 23<sup>rd</sup> 1901

Dear Dr. Howard,

I send you herewith:

Package no. 57—consisting of two tin boxes as follows1 tin box with Arctiid larvae (one species), all  
being found under a single rock along the railroadtrack (where there are lots of imported plants). Food  
plant or plants unknown. Williams, Ariz., July 22, 19011 tin box with Orygia and some other larvae all  
from Spruce. Williams, Ariz. July 23, 1901Yours sincerely,  
E. A. Schwarz*The package  
contains living specimens  
requiring attention.*5576 + 7576  
9454 + 9455

Williams, Ariz. June 9, 1901

Williams, Ariz. June 9, 1901

Dear Dr. Howard,

Letter will follow tomorrow. The specimens  
enumerated on the inclosed list do not need any  
attention on the part of the Office. Please place the  
boxes in a safe place where they are not rattled about.

There is only one package, viz. package No. 4, which  
if you consent, should be submitted for examination  
to Dr. Hopkins. If you should think it advisable to  
send him the package, he could keep the three specimens  
of *Scolytids* in the small vial. A copy of my note to  
package 14 should then also be sent to Hopkins.

E. A. Schwarz

visco Mt. plateau

arbores

cut with this;

Williams, Ariz.

8, 1901.

4 beaten from oak  
in trees.

also Aphid on *Quercus* sp

miscellaneous specimens

itescens (?) under rock.

a few under pine bark

re miscellaneous larvae

- " 45 Larva of *Cybister* sp. and imago of *Tropisternus*
- " 46 Larva of *Coelocnemis* sp. under stone
- " 47 Pseudoscorpions, *Rhaphidia* larva & miscellaneous
- " 48 Insects (mostly *Coleoptera*) found in rosin of *Pinus* sp.; also *Tomivus* sp.,  
with pupa, under bark of pine logs at the sawmill
- " 49 Pupa of *Allandorus* found under bark of *Aspen*
- " 50 *Lasius* sp. with larva and inquiline insects (*Limulodes* and *Acanids*)



Williams, Ar., June 9, 1901

Entomological Survey of the San Francisco Mt. plateau

by E. A. Schwarz & H. S. Barber

List of specimens and material sent with this;  
all collected in the immediate vicinity of Williams, Arz.  
between June 1 and June 8, 1901.

Cigar box No. 10. Alcoholic specimens as follows

- Vial 33 Miscellaneous Arachnids
- |   |    |   |   |  |
|---|----|---|---|--|
| " | 34 | " | " | } mostly beaten from oak<br>or pine trees. |
| " | 35 | " | " |  |
- " 36 *Centrophilus* sp
- " 37 " sp
- " 38 *Ideks* devil
- " 39 Two species of *Proctos* <sup>dead</sup> on oak branches; also Aphid on *Quercus* sp
- " 40 *Tarentula* sp. under stone
- " 41 Various small vials, containing miscellaneous specimens
- " 42 *Myrmecophila* sp. among *Formica rufescens* (?) under rock.
- " 43 Miscellaneous larvae, mostly aquatic; a few under pine bark
- " 44 *Agabus* sp., with its larva; also some miscellaneous larvae
- " 45 Larva of *Cybister* sp. and imago of *Tropisternus*
- " 46 Larva of *Coelocnemis* sp. under stone
- " 47 *Pseudoscorpions*, *Rhaphidia* larva & miscellaneous
- " 48 Insects (mostly *Coleoptera*) found in rosin of *Pinus* sp; also *Tomarus* sp.,  
with pupa, under bark of pine logs at the sawmill
- " 49 Pupa of *Allandrus* found under bark of Aspen
- " 50 *Lasius* sp. with larva and inquiline insects, (*Limulodes* and *Acanthi*)

- Vial 51 Unknown Scarabaeid larva found in ground
- 52 Colony of ants
- 53 Myrmecophilous mites with host ants
- 54 Lepidopterous larvæ (neither *Proconba* nor *Prodoxus*) boring in flower stems of *Yucca* sp., or working between the unrolled leaves of same *Yucca*. (living specimens are herewith sent). <sup>see packages 17 and 18</sup>
- 55. Larvæ of *Trogosita* (*californica*?) under pine bark
- 56 Colony of *Xyleborus* n. sp., ♀♀ and two ♂♂ (found dead) from within stump of *Pinus* sp.
- 57 Thrips sp. from flowers of *Yucca* sp.
- 58 Pupæ and imagoes (mostly immature) of new genus of Scolytids under outer bark of *Aspen*. (see samples of burrows) <sup>1 package no. 14</sup>
- 59 Supposed larvæ and two imagoes (found dead) of the destructive *Dendroctonus*, found under bark of dead young pine tree on north slope of City hill.
- 60. One larva and two imagoes of the destructive *Dendroctonus* (same as no. 59?) from under bark of dying large pine tree (galleries see in packages nos. 12 and 13)

Cigar box no. 11 — Specimens (several thousands) in pill boxes

Package no. 12 — Pieces of Bark of *Pinus* sp. showing galleries of the destructive *Dendroctonus* (*D. n. sp.*). Alcoholic specimens of the insect see in vial 60 F.

Package no. 13 — Duplicates of preceding package.

Package no. 14 — Galleries of new gen., n. sp. of Scolytids immediately under the thin outer epidermis of *Populus tremuloides*. Two of the pieces of bark have the epidermis ~~taken~~ peeled off by us to show the galleries. The package contains also a small vial wrapped in cotton with 3 sample specimens of the



(3)

Scolytid, Other specimens of the imago are in pill box.

Package No. 15 - Galleries of (?) Tomicus n. sp under bark of Pinus sp. Alcoholic specimens of the imago will be sent under number 60<sup>2</sup>.

Package No. 16 Galleries of Tomicus sp, near pini under bark of freshly felled pine logs. Imagos in pill boxes. These pine logs belong to a lot which was brought by the mill people from the southern side of Ben Williams Mt.

---

Note:  
Packages 82, 83 and 84  
contain living material which  
should be taken care of

Do not write me after  
receipt of this

Las Vegas Hot Springs, N. Mex.

August 15, 1901

Dear Dr. Howard,

I mail you herewith six packages

as follows:

(9483.)

Package 82 - Piñon twigs containing living specimens of *Pityophthorus* and other insects.  
Please place these in a breeding jar. - There is in the box a vial with some piñon twigs  
taken from a different tree; this does not need to be opened. - All from Las Vegas Hot Springs

Package 83 - Same as No. 82, but the contents should be placed into a separate jar.

Package 84 - Two tin boxes with piñon cones, some of which will no doubt contain  
(9481) colonies of living *Scolytids* (*Pityophthorus* n. sp.), and there may be also larvae of a *Pipidoptera*  
(9482, Tortricid) unknown to me which lives in the piñon seeds independently of the *Pityophthorus*.

Las Vegas Hot Springs, N. Mex., August, 1901

Package No. 85 - Miscellaneous insects pinned

Package No. 86 - Miscellaneous insects in alcoholic vials

Package No. 86<sup>a</sup> - Entomological supplies returned: Rubber stopples. These were sent  
to me lately but there were no vials to fit them. Moreover, rubber stopples are just useless  
on an entomological field expedition.

Yours sincerely,

S. H. Schwarz

P.S. We expect to return to Washington, D.C. before the end of next week. Do not  
acknowledge, therefore, the receipt of these boxes nor write or forward any letters to me.

S. H. S.



William, Ar., June 14, 1901

into Nat. Plateau

Note:

Of the packages sent with this only nos. 21,  
28 and 29 need attention at the Office. The rest  
does not need to be opened.

June 14<sup>th</sup>, 1901

E. A. S.

solid wood of *Pinus* sp. — There

will be plenty of living specimens in the wood, and possibly also in questines. So it would  
9424. pay to put the piece of wood in a breeding cage. No larvae or pupae of this and  
other inside-feeding Scolytids seem to be present at this season. — Imagos are  
also preserved in pill boxes.

Package no. 22 — Galleries of *Phloeosinus cristatus* (?) under the thick bark of *Juniperus* sp.

Only old galleries have hitherto been found. Dead beetles taken from the galleries are  
preserved in alcohol.

Package no. 23 — Galleries of *Dendroctonus* n. sp. <sup>(no. 60)</sup> in *Pinus* sp. (duplicated in package  
no. 12).

Package no. 24 — Work of *Xyleborus* n. sp. within stump of pine tree (wood apparently  
rotten!!) Imagos ♂ & ♀ in alcohol; ♀♀ in pill boxes.

Package no. 25 — Contents: a) box with pinned Microlepidoptera; b) small  
package with galleries of *Tomicus* n. sp. (no. 60<sup>2</sup>); duplicated in package no. 15;  
c) Initial gallery of *Hylastes longus* from under bark, below surface of ground,  
of *Pinus* sp. Imagos ♂ & ♀ in pill box.

[ Packages nos. 26 & 27 will be sent next Monday ]

Package no. 28 — Old flower stem (in sections) of *Yucca* sp. Probably contains: a) larvae  
of *Prodoxus* sp. (specimens also preserved in alcohol); b) larvae and imagos of  
9425. *Hemiptychus* (Phinidae) n. sp. (specimens also preserved in alcohol; c) imagos of  
*Apotrepus* (Calandridae) *denticollis*

Williams, Ar., June 14, 1901

Entomological Survey of the San Francisco Mt. Plateau

by E. A. Schwarz & H. S. Barber

List of packages sent with this

All specimens collected between June 9 and June 14<sup>th</sup>, 1901

Package no. 21 - Work of Leathotrichus retusus (?) in solid wood of Pinus sp. - There will be plenty of living specimens in the wood, and possibly also in galleries. So it would  
9424. pay to put the piece of wood in a breeding cage. No larvae or pupae of this and other inside-feeding Scolytids seem to be present at this season. - Imagos are also preserved in pill boxes.

Package no. 22 - Galleries of Phloeosinus cristatus (?) under the thick bark of Juniperus sp. Only old galleries have hitherto been found. Dead beetles taken from the galleries are preserved in alcohol.

Package no. 23 - Galleries of Dendroctonus n. sp. in Pinus sp. (no. 60) (duplicated in package no. 12).

Package no. 24 - Work of Xyleborus n. sp. within stump of pine tree (wood apparently rotten!!) Imagos ♂ & ♀ in alcohol; ♀♀ in pill boxes.

Package no. 25 - Contents: a) box with pinned Microlepidoptera; b) small package with galleries of Tomicus n. sp. (no. 60<sup>a</sup>); duplicated in package no. 15; c) Initial gallery of Hylastes longus from under bark, below surface of ground, of Pinus sp. Imagos ♂ & ♀ in pill box.

[ Packages nos. 26 & 27 will be sent next Monday ]

Package no. 28 - Old flower stem (in sections) of Yucca sp. Probably contains: a) larvae of Prodoxus sp. (specimens also preserved in alcohol); b) larvae and imagos of Hemipterichus (Phinidae) n. sp. (specimens also preserved in alcohol; c) imagos of Apotrepus (Calandridae) densicollis



Note:  
Packages nos. 42 and 43  
need attention on the  
part of the office.

Flagstaff, Ariz., July 7, 1901

Dear Dr. Howard,

I send you herewith three packages, as follows:

Package 42 - Roots of some unknown yellow-flowering plants

9445. (specimens of plants are preserved by us) infested by a Curculionid(?)  
larva. It would be interesting to breed the imago, and I beg you  
therefore to have the plants placed in a breeding jar. Collected at Flagstaff,  
July 6, 1901

Package No. 43 - Piece of bark of *Pinus* sp. containing <sup>living</sup> larvae and pupae of  
9446 a Scolytid. The imago should be bred by all means, and I beg you  
therefore to place the bark in a breeding jar. Collected at Flagstaff, Ariz.,  
July 7, 1901

Package No. 44 - Extra-fine samples of the work of the destructive  
*Dendroctonus* (*D. v. n.*) in bark of *Pinus* sp. Less perfect samples have  
been sent before. (This is my number 602.) Collected at Flagstaff, Ariz.,  
July 7, 1901. Imagos in alcohol and pill-boxes

Yours sincerely

E. A. Schwarz

## Location Notice.

Notice is hereby given that the undersigned, having complied with the laws of the United States and the laws and customs governing this class of mining claims in the Territory of Arizona, do hereby locate and claim one hundred and sixty (160) acres of unsurveyed placer mining ground in Cococino County (this location being made for the purpose of amending a prior location dated the..... day of ..... 1901, and recorded in Book..... P....., Record of Mining Claims in said County) in the Territory of Arizona, described as follows, to wit:

Beginning at a rock monument situated at a point which when surveyed will be the..... corner of Section....., T....., R....., G. & S. R. Mer., and running thence..... one hundred and sixty (160) rods, more or less, to the..... corner of the..... quarter of said section; thence..... one hundred and sixty (160) rods, more or less, to the..... corner of said quarter section; thence..... one hundred and sixty (160) rods, more or less, to the..... corner of said quarter section; thence..... one hundred and sixty (160) rods, more or less, to the place of beginning, it being intended by the undersigned to conform said location to the..... quarter of said section....., T....., R..... when the same shall be surveyed by the United States.

The above description is intended to cover the entire location of one hundred and sixty (160) acres, the boundaries to conform to the United States Government survey. This notice is posted at the..... corner of Section..... within the limits of said described mining claim in a mound of rock in accordance with the laws governing rock monuments.

Said claim and location shall be known as the..... *Edward*..... placer claim.

Located this..... day of ..... 19.....

WITNESSED BY

.....	.....	Locator.
.....	.....	"
.....	.....	"
.....	.....	"
.....	.....	"
.....	.....	"
.....	.....	"
.....	.....	"

By.....  
*Attorney in Fact.*



Note

Package no. 36 should  
be placed in a breeding jar,  
to breed the Sooty tit and  
more especially its predaceous  
enemies and parasites.

The rest of the packages  
should not be opened but  
placed in a safe place.

E. A. Schwarz

Williams, Ariz., July 1<sup>st</sup>, 1901

Dr. L. O. Howard,

Dear Sir,

The following packages containing entomological material are ~~herewith~~ mailed to you.

Package No. 34 - Miscellaneous insects in pill boxes; also a few insects in square envelopes.

Package No. 35 - Insects, mostly Odonata in envelopes; also miscell. insects rolled up in paper; also one box of pinned Microlepidoptera from Hot Springs, Yavapai Co., Ar.

Package No. 36 - Twigs of Robinia neomexicana containing colonies of Coring Chramesus robiniae Schwarz, MS. (Scolytidae). Williams, Ar., June 30, 1901

Package No. 37 - Package of plants; mostly foot-plants of insects observed.

Package No. 38 - Patent mailing box, containing some alcoholic specimens, all duly labeled and dated

Package No. 39 - Cigar box containing miscellaneous insects in pill boxes.

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E. A. Schwarz



9426.  
Package No 29 - Recently killed (by oviposition of Cicada sp. in the more  
terminal portions of the twigs) oak twigs infested by an undescribed genus  
and species of Scolytids. The specimens (at this season probably all in eggs)  
are alive, and I am anxious to have a large number bred from these twigs.

E. A. Schwarz.

Missing boxes

Box no 1. Alcoholic material, vials 1-32

" 33 (part) Alcoholic material, vials 93-100, June 20



Notes:  
Package No. 90  
contains living specimens!

Las Vegas, Hot Springs, N. Mex., August 18, 1901

Dear Dr. Howard,

I mail you herewith the following packages:

Package No. 89 — Miscellaneous insects in alcoholic vials

(9481.)

Package No. 90 — Two tin boxes: a) Additional specimens of piñon cones, probably

infested by *Pityophtorus* n. sp. and possibly a *Lepidopterous* larva.

✓ Package No. 90<sup>a</sup> — Entomological supplies (vials) returned.

The specimens were all collected at Las Vegas Hot Springs, N. Mex. during the past week.

Yours sincerely

E. A. Schwarz

(9487)

b) Two Arctiid larvae found under stones (one has webbed up last night)  
food plant or plants unknown.

WILLIAM CURTISS BAILEY, A. M., M. D.  
MEDICAL DIRECTOR.

W. G. GREENLEAF,  
MANAGER.

... Las Vegas Hot Springs ... N. Mex, August 17, 1901

NEW MEXICO, U. S. A.

» A HEALTH RESORT. «

OFFICE OF MEDICAL DIRECTOR.

The packages sent  
with this contain  
living material

Dear Dr. Howard,

I mail you herewith two packages as follows:

Package No. 87 <sup>(9486)</sup> — Consists of two cigar boxes containing branches and twigs  
of a pine tree that has been killed by lightning. Las Vegas Hot Springs, N. Mex, August 15, 1901

Package No. 88 <sup>(9486)</sup> — Two thicker branches of the same tree.

The branches and twigs are infested by Cerambycidous larval and Scolytids (genera  
Pityogenes and Pityophthorus, and possibly also Tomiscus)

The branches should be placed in breeding jars but the smaller ones should be separated  
from the large ones.

Yours sincerely,

E. A. Schwarz.



UNITED STATES DEPARTMENT OF AGRICULTURE,  
DIVISION OF ENTOMOLOGY,  
WASHINGTON, D. C.

L. O. HOWARD, ENTOMOLOGIST.  
C. L. MARLATT, } ASSISTANT ENTOMOLOGISTS.  
F. H. CHITTENDEN }

ack.  
Williams, Ariz., July 30, 1901

Dear Dr Howard.

To clear up our collections made at  
Williams I mail you herewith five packages, none of which  
need any attention on the part of your Office:

Package no. 64 - Pinned insects, mostly Noctuidae.

Package no. 65 - Contains two small boxes of pinned Microlepidoptera.

Package no. 66 - Miscellaneous insects in vials, or pill boxes or envelopes.

Package no. 67 - Galleries of *Pityophthorus* sp. in twigs of Spruce.

Package no. 68 - Galleries of *Phloeosinus* sp. (*cristatus*?) in *Juniperus* sp.

Yours sincerely,

E. A. Schwarz.

Note  
None of the packages  
sent herewith (nos. 45, 46, 47, & 48)  
need attention at the office

Williams, Ariz., July 15, 1901

Dear Dr. Howard,

I send you herewith four  
packages as follows:

Package No. 45 - Odonata and Myrmecoleonidae in envelopes (mostly from  
the Grand Cañon of the Colorado); Orthoptera and some other insects in wrappers,  
- all duly labeled and dated

Package No. 46 - Contains a small box of pinned and spread  
Microlepidoptera, mostly from Hot Springs, Ariz.; - all labeled and dated

Package No. 47 - Miscellaneous insects in pill boxes, several thousand  
specimens.

Package No. 48 - Miscellaneous insects and spiders in vials (alcoholic).  
each vial labeled and dated.

Yours sincerely,  
E. A. Schwarz.



- 71 - Longhorn (?) larva in desert plant (Artemisia?) - August 4  
 Larva of *Gymnophylus* & *Euclyptus*
- 72 Record not made " 4
- 73 Twigs of piñon with *Pityophthorus* galleries August 7
- 74 Larger twigs of piñon " "
- 75 Lepidopt. larvae on Spruce
- 79 - Rhopalocera larva - 2 larvae - Lepidopt. larvae on August 10  
 pine & piñon
- 80 Saw-fly larva & Lepid. larva on Juniper - Twigs of Pinus  
 with *Pityophthorus*
- 81 Branch of Juniperus sp. with *Phloeosinus*
- 82 Piñon twigs with *Pityophthorus* August 15
- 83 " " " *Euclyptus*
- 84 Piñon cones
- 87 Twigs & branches of Pinus August 17
- 88 Thicker branches of Pinus
- 90 Piñon cones, Arctid larvae August 19

Las Vegas Hot Springs, N. Mex.,

August 4, 1901

Dear Dr. Howard,

I send you herewith 3 packages

as follows:

Package No. 69 - Containing 2 cigar boxes, one with insects in pill boxes, the other insects in envelopes.

Package No. 70 - Contains 4 small tin boxes as follows:

I) Row <sup>9463. Megachile</sup> of Hymenopterous cells found under stone,

Las Vegas Hot Springs, N. Mex., Aug. 3, 1901; II) Lepidopterous

<sup>4352. Geometrid</sup> larvæ found on fungous growth under bark of old

pine stump, Las Vegas Hot Springs, N. Mex., Aug. 3, 1901; III)

(larva died: placed in alcohol) noctuid larva found under Aspen bark, Williams, Ariz.

<sup>9464. Plinid?</sup> July 21, 1901; IV) Coleopterous larva (one specimen) found boring in half-rotten wood of Pinus sp., Williams, Ariz., May 1901

Package No. 71 - Contains two tin boxes: 1) (?) Coleopterous

<sup>9465. Pyralid larvae</sup> larvæ boring in roots of desert plant (? Artemisia sp.),

Winslow, Ariz., July 31, 1901; also one larva in alcoholic

vial - 2) Two species of Coleopterous larvæ (to)

Packages  
Nos 70 and 71  
contain living material  
which should be taken care  
of or thrown away



(2)

4332. *C. bairdianus*

(*Cyphrotylus bairdianus*, if I remember correctly, and  
9466.  
? *Eutrophus* sp.) found in fungus growing on old

pine stump, Las Vegas Hot Springs, N. Mex., Aug 2, 1901.

The *Cyphrotylus carvatus* should be placed in alcohol ~~if~~ when  
they are full-grown; the ? *Eutrophus carvatus* should be bred  
if possible to the imago state.

Yours sincerely,

E. A. Schwarz



Williams, Ariz., June 11, 1901

Entomological Survey of the San Francisco Mt. Plateau, Ariz.

by E. A. Schwarz & H. S. Barber

List of specimens sent with this

All labeled as to locality and date

Package No. 19 - Pinned Microlepidoptera, mostly Yucca moths. - Should be left as it is; but I would like to know whether it arrived in good condition.

Package No. No. 20. - Duplicates of two species of Dichelonychia pinned. -

Mr. Fall of Pasadena is now working up this genus and the Museum material has been sent to him recently for study. Since no species of this genus is hitherto known from Arizona it would be advisable to send him these two species. I would have sent them directly from here to Mr. Fall but I think they are more properly sent through the Department of Insects U. S. N. Mus.

Sent to Fall



## Living Material

2. Tin box no 2, Buds of (?) *Arbor vitae* - Williams - June 1<sup>st</sup>
3. Cigar box no 3 Fruit of (?) *Arbor vitae* - Williams
4. Tin box no 4 Bombycid (?) *Carrat* - Williams
5. Tin box no 5 Gynipidous galls - "
6. " " " 6 " " - "
- 7-8 Collection of oak caterpillars - "
14. Galleries of *Aspen Scolytid* - " June 8,
17. Stems of *Yucca* sp. - " "
18. Leaf bar of *Yucca* with Lepidopt. - " "
20. Pinned *Dichelonychia* - " June 11
21. Work of *Enallagma* retus - " June 14<sup>th</sup>
28. Old flower stem of *Yucca* - "
29. Oak twigs with *M. crass* - "
- 32 - Caterpillars on *Parshia*; Web worms on } - June 17<sup>th</sup>  
*Araria*; Oak caterpillars
- 33 - 1) *Aspen* - *Carrat* etc. 2) Lepidopt. *Chama* sp. fungus - June 20<sup>th</sup>
36. Twigs of *Robinia* with *Chamaeris* n. sp. July 1<sup>st</sup>
42. Curculionid in roots of unknown yellow-flowering plant. July 7<sup>th</sup>
43. Piece of pine bark with *Carrat* & pupae of unknown *Scolytid*. " "
49. Caterpillars 1) from *Parshia* 2) from oak 3) from unknown bark July 17<sup>th</sup>
54. Twigs of *Parshia* with *Renovis* July 22
55. " " " with *Longicorn* *Carrat* "
56. Spruce bark with *Scolytus* "
57. Artificial *Carrat*, Caterpillars (*Oryzia*) on Spruce " 23
70. Row of Hydrant. cells - Lepidopt. in fungus - Orchard  
under aspen bark - Coleopt. *Carrat* in pine wood August 4



LIST OF ORTHOPTERA COLLECTED IN ARIZONA BY BARBER AND SCHWARZ IN 1901.

-0-

FORFICULIDAE.

1. + Spongophora brunneipennis Serv. 18. + Hesperotettix viridis Thom.

PHASMIDAE.

2. - Bacillus coloradus Scudd. 20. + " bowditchi Scudd.

<sup>2 1/2</sup> <sup>n. sp. Caud.</sup> <sup>2 1/2</sup> <sup>truncata Caud. (Brt Angel)</sup> <sup>abr.</sup>

MANTIDAE.

3. + Stagmomantis sp. (immature). 21. + " bivittatus Say.

3 1/2. - Litaneutria minor Scudd.

ACRIDIIDAE.

Tettigidae.

4. + Paratettix morsei Hanc. 22. + " canonicus Scudd.

4 1/2 Telmatettix parviverzicis Hanc.  
Oedipodinae.

5. - Arphia teporata Scudd. 23. + " flavidus Scudd.

6. - Hippiscus neglectus Scudd. 24. + Poecilotettix coccinatus Scudd.

7. + " pumilis Scudd. 25. + Hormetica elegans Scudd.

8. - Conozoa behrensi Sauss. 26. + Ateloplus notatus Scudd.

9. + Trimerotropis citrina Scudd. 27. + Eremopedes unicolor Scudd.

10. + " cyanipennis Brun. 28. + " balli Caud.

11. + " vinculata Scudd. 29. + Plagiostira albonotata Scudd.

12. + Circotettix undulatus Thom. 30. + Capnobotes fuliginosa Them.

13. + Heliastus aridus Brun. 31. + Stenopelmatus oculatus Scudd.

Acridiinae.

14. + Parapomala wyomingensis Thom. 32. + Myrmecophila nebrascensis Brun.

15. + Schistocerca shoshone Thom. 33. + Gryllus ~~assinilis~~ Fabr. <sup>personatus</sup>

16. + " vagum Scudd. 34. + " pennsylvanicus form neglectus Scudd.

17. + Hesperotettix curtippennis Scudd.

There are also three species of Cuthophilus which I made no attempt to name.

-0-

A. N. Candell.

See also list of Orthoptera from Las Vegas.